The Mediterranean Context of Early Greek History

Nancy H. Demand

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Contents

List of Illustrations vii

List of Abbreviations ix

Introduction: The "Fantastic Cauldron" of the Mediterranean *Koine* xi
1 Seafaring in the Mesolithic Mediterranean 1
2 The Neolithic Revolution/Transition 13
3 The Neolithic Diaspora 35
4 Urbanization in Mesopotamia 60
5 The Third Millennium 83
6 The Middle Bronze Age (2000–1550 BC): Recoveries 126
7 Late Bronze Age Maritime Networks 162
8 The Late Bronze Age Collapse and its Aftermath 193
9 Recovery and Expansion (1050–850 BC) 220

Bibliography 256

Index 349

Illustrations

Maps

0.1 The Mediterranean xiv
1.1 Obsidian in the Aegean 2
1.2 Central Mediterranean obsidian 5
1.3 Anatolian obsidian sources 7
2.1 The Fertile Crescent, Cyprus 18
2.2 Neolithic Settlements and the Mureybet Culture 19
3.1 The Neolithic Diaspora in the East 36
3.2 Distribution of Dark-Faced Burnished Ware (DFBW) 37
3.3 The Neolithic Diaspora in the West 50
4.1 Fifth and sixth millennia Ubaid sites in Upper Mesopotamia 61
4.2 Fourth millenium Uruk expansion: Amuq and Egypt 64
5.1 The Eastern Mediterranean in the Early Bronze Age 84
5.2 Anatolian trade network 92
5.3 The Aegean and Crete 99
5.4 Westward expansion 108
5.5 Iberia 111
6.1 Fertile Crescent, Cyprus, and Greece 127
6.2 Egypt 128
6.3 Minoan Crete 133
7.1 Sea routes in the Late Bronze Age East 163
7.2 Cyprus in the Late Bronze Age 164
7.3 Mycenaean palaces and Aegean maritime routes 179
7.4 Western Mediterranean sea routes in the Late Bronze Age 186
8.1 The Hittites and the Levant 194
8.2 The Aegean 197
8.3 Italian Sites with connections with Handmade Burnished Ware 214
9.1 The western Mediterranean 222

9.2 The eastern Mediterranean 224
9.3 Greece and the Aegean 226

Figures

Figure 3.1 Stamp seal of bear 43
Figure 3.2 Woman as Life/Death 43

Abbreviations

ATN	Anatolian trade network
BP	Before the Present (conventionally taken as indicating 1950)
DFBW	Dark-Faced Burnished Ware
EB	Early Bronze
EC	Early Cypriot
ECy	Early Cycladic
EH	Early Helladic
EM	Early Minoan
LB	Late Bronze
LC	Late Cypriot
LH	Late Helladic
LM	Late Minoan
MB	Middle Bronze
MC	Middle Cypriot
MH	Middle Helladic
MM	Middle Minoan
MYC	Mycenean
PPN	Pre-Pottery Neolithic
PPNA	Pre-Pottery Neolithic A
PPNB	Pre-Pottery Neolithic B

Introduction
The "Fantastic Cauldron" of the Mediterranean Koine

Odysseus vs. Hesiod?

In Greek culture, Odysseus personifies the seafaring life of adventure and peril, while Hesiod represents the life of the stolid farmer. But both also show the interconnectedness of these lives – Odysseus in the end goes off in search of a land that does not know the sea, presumably to settle down, while Hesiod acknowledges that it is sometimes necessary for the farmer to take to the sea – for the funeral of a king, and, more often, to exchange excess crops for necessities lacking at home – even giving advice about sailing seasons and the type of boat to use.[1] But in the analysis of the early Greek polis, it has been the Hesiodic life of the farmer that has been preferred as a model. The origin of the *polis* is seen in the agricultural village,[2] and the spread of Greek settlement over the landscape in what is anachronistically called "colonization" has been linked to excessive population growth and a "homestead model," rather than to the spread of trading bases – the latter an interest attributed to the Phoenicians, seen by this time, not as partners, but as wily and untrustworthy predators.

Yet perhaps the most fruitful period in Greek history arose out of the essential partnership of the Phoenicians and the Greeks in creating settlements in the west in the so-called Dark Age, as they moved westward, essentially in cooperation, in a dynamic and enterprising network of maritime connections that has been called "a fantastic cauldron of expanding cultures and commerces" (Morel 1984: 150). In this melange, the two peoples often interacted at a level at which ideas as well as objects and motifs were exchanged. From the start, the fact that they moved westward more or less in tandem, sometimes perhaps even sailing in the same expedition, would have required some sharing of ideas: potential settlement sites, hopes of profits to be gained, sailing strategies. Once they had arrived at a site, it is likely that the exchange of ideas extended to practical ways of establishing and organizing the new settlement. Questions arose about how land was to be distributed and by whom; ongoing decisions affecting the whole community were to be made. For the Greeks in

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particular, establishing new settlements far from home would have required a much more consciously formalized political structure than they had known at home. Some input by the Phoenicians, who had a long history of living in city-states and relatively recent experience in the creation of new settlements, seems very likely (Murray 2000: 237–8; Boardman 2001: 33; S. Morris 1992b), and has been suggested by a number of Greek historians.[3]

Such influences are obvious in the orientalizing style of art and in myth (Burkert 1992; S. Morris 1992a), but there is also considerable evidence that the East, and the Phoenicians in particular, had something to contribute toward political development. For example, Aristotle attests the existence of an assembly of the people at Carthage,[4] and there is evidence for one at Byblos as early as 1100 BC.[5] Nor was influence confined to purely Phoenician institutions. In the extended period during which the Phoenicians were under Assyrian and then Neo-Babylonian political pressures, if they were not actually subject to their rule, they were open to Assyrian and Neo-Babylonian political ideas and concepts. Recent studies of Neo-Babylonian texts (Dandamaev 1981) and of the Mesopotamian city (Van De Mieroop 1997: 133), have demonstrated that a tradition of democratic city life existed in Mesopotamia in the Neo-Babylonian period. Tens of thousands of texts from this period have been found, among which are texts that record the decisions of assemblies of citizens regarding property disputes, private offenses, temple affairs, criminal cases of theft, and leases. The assemblies included not just men of high social standing, such as officials of the city or temple, but also freeborn men of various humbler occupations: artisans, bakers, brewers, butchers, doorkeepers. Citizenship seems to have been determined by free birth to citizen parents, for alien residents did not take part in the assemblies, and all citizens were in that sense equal (although far from equal in material wealth and status). In his study of the Mesopotamian city, Dandamaev concluded that, "a characteristic feature of these cities was self-rule by free and legally equal members of society united in a popular assembly" (Dandamaev 1991).

In arguing the role of the complex interaction of Mediterranean maritime connections for the development of the Greek polis I join a growing group of historians who have recently advocated a focus on the broader Mediterranean and the abandonment of traditional isolationist models, turning to networks and interconnections, or the concept of "Mediterraneanization," for models.[6] This approach began with Nicholas Purcell and is now espoused by an increasing number of scholars (Purcell 1990; S. Morris 1992a, 1992b; Purcell and Horden 2000; Raaflaub 2000; Malkin 2003; I. Morris 2003; S. Sherratt 2003a). Even the director of the Copenhagen Polis Project, Mogens Hansen, has abandoned the traditional criterion of self-sufficiency for the polis and acknowledged the vital role played by exchange of all forms to its development – not simply exchange in luxury items or staple products, but in ideas as well.[7] He sees the openness of a culture to outside influences through involvement in trade and other external ventures as the spark that created variations in wealth, which in turn created social complexity and thus a need for new sociopolitical forms to embody new relationships.[8]

Who were the agents of change? Among the Greeks, Raaflaub (2004) has characterized them as "colonizers, adventurers, or raiders," adding, as well, "specialists" (architects, doctors, mercenaries). As for specifically eastern influences, Davies suggests

that we should not credit "precise knowledgeable borrowings on the part of Greeks so much as the sort of awareness of institutions in Assyria or Phoenicia or Egypt which mercenaries, craftsmen, and *emporoi* will inevitably have gained and brought back" (Davies 1997: 33–4).

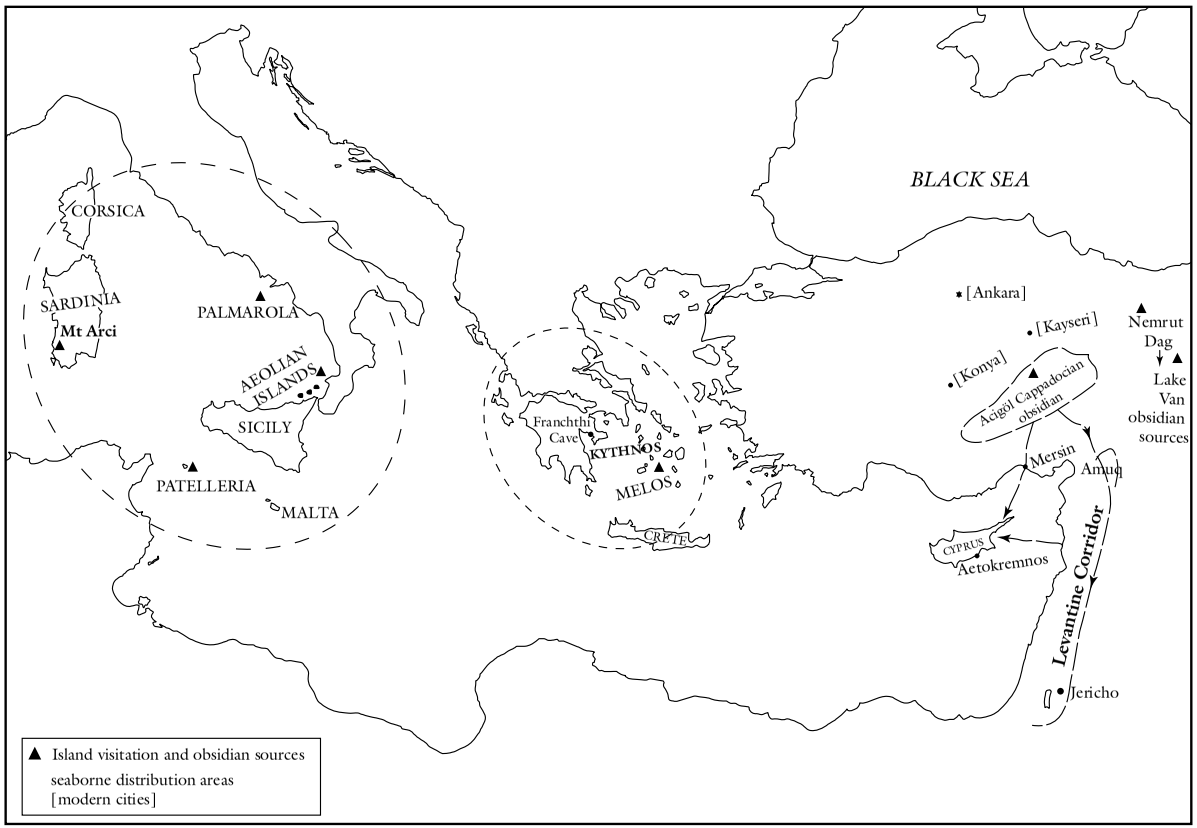
It was these ordinary people, and the disaffected aristocrats who joined them, through boredom, family strife, or hope for lucre, who made up the "fantastic cauldron" of central Mediterranean maritime interconnections in the "Dark Age." It is to them and to their experiments in settlement structure, filtered back from overseas, that we should look for the origins of the polis, rather than to the settled farmers and the elite leaders they left behind. The essential element in the creation of these new settlements, as well as in the origin of the polis, was the mixture and interaction of such ordinary and extraordinary people – craftsmen, traders, sailors, disaffected aristocrats – in the "fantastic cauldron" of maritime interconnections. Moreover, this active network generated not simply the early polis, but also Carthage, the other overseas Phoenician settlements, and the Etruscan city-state (C.J. Smith (1997)).

Looking Back

Greek history is no longer thought to have begun with the first Olympiad or with the entrance of Indo-Europeans into Greece at the end of the third millennium BC (Thomas 1981: 22), an "event" no longer credited (Forsén 1992). In fact, no sharp line can be drawn for human activity in Greece after the first occupation of the Franchthi Cave in the Upper Palaeolithic (Jacobsen 1981).

Mediterranean seafaring began even earlier, as far back as the Pleistocene, when early humans or pre-humans, perhaps Neanderthals, took to the sea and found good hunting on nearby islands. Since animals unused to humans were easy pickings, these ventures soon died out for lack of game. One such case of the early visitation of an island for hunting is attested in Cyprus in the Mesolithic (10,800–9600 BC) when a band of some 25–50 hunters utilized a rock shelter at Aetokremnos (Simmons 2001; Simmons 1991; 1999: 208–9; Manning 1991; Cherry 1990: 163). The visitors left behind stone tools and the remains of butchered animals that attest to their presence. Simmons argues that the site was "a limited activity faunal processing locality" for Mesolithic pigmy-hippo hunters, whose activities were responsible for the extinction of the pigmy hippos. While a search for food may have been a motivating factor, there were surely more easily accessible sources of nutrition on the mainland. Curiosity, adventure, perhaps the display of prowess at hunting, or even a ritual meaning involved in hunting, must have played a role in inspiring such ventures.

At about the same time that the pigmy-hippo hunters visited Cyprus, someone took obsidian to the Franchthi Cave in the Peloponnese in Greece. Since the origins of obsidian can be determined with great accuracy, it was possible to trace the material found at the cave to the Aegean island of Melos. And since Melos was not inhabited at the time, the obsidian must have been collected on the island and taken to the cave by seafaring travelers. The small amounts found suggest that it was not the inhabitants of the cave themselves who obtained it, but that it reached them by a trade route for which it provided one terminus. The much greater amounts of obsidian found at Maroulas on



Map 0.1 The Mediterranean.

the Aegean island of Kythnos make it likely that it was a principal player in such a route. Other sources of obsidian existed in the central Mediterranean on the Aeolian islands and in Sardinia, and each source had its own trade route. A third major source of obsidian existed in the mountains of central and eastern Anatolia. From the Anatolian sources, Cilicia acted as a conduit through which obsidian passed to the coast in the area of the Amuq (plain of Antakya/Antioch). The Amuq in turn provided access to Cyprus and formed the "hinge" of a series of ongoing connections called the Levantine Interaction Sphere (Bar-Yosef and Belfer-Cohen 1989).

These early island visits did not result in long-lasting occupation, but the possibility of permanent settlement grew as people learned to cultivate plants for food and to domesticate or manage animals (including keeping animals for the hunt) in the Neolithic Revolution. Both Cyprus and Crete saw such permanent settlement in the Neolithic.

Very early human history thus attests to some fundamental motivations for seafaring – curiosity and adventure; the pursuit of new hunting, for food, status, magic/ritual; the acquisition of more effective tools; the use of trade to multiply available resources; and settlement to exploit new environments. As human settlement and activity spread across the Mediterranean over the millennia these motives continued to operate and to shape history. Human groups grew in size and complexity, giving their members the opportunity to discover and profit from their special abilities, and the social and economic variations that occurred as a result brought new ways of organizing communities. This in turn led to the development of political forms such as the village, the small city-state (Greek polis, Levantine city-states), and the large empire (the Persian Empire, the empire of Alexander). Large portions of this history are known only fragmentarily while other periods are overwhelming in the amount of evidence available and the academic debates they inspire. Considering the overall pattern will, however, bring a better background for approaching the individual parts. "Greek history" is one such part that should be seen in its wider context as being important but still, essentially, only one element in the much wider and longer-ranging history of human life in the Mediterranean.

Notes

1 The Mediterranean as a *koine*, a collection of interactive cultures, has been suggested by Seybold and von Ungern-Sternberg (1993); K. Raaflaub (2000).

2 Thomas and Griffith (1981), quoting L. Mumford (1966: 36), the polis arose from the "village raised to a new level of self-consciousness"; Thomas and Conant (1999); Thomas and Donlan (1993); Donlan (1997); V.D. Hansen ([1995] 1999).

3 Oliver (1960); Liverani (1975); Drews (1979); Snodgrass (1980: 32–4); Bernal (1993); Davies (1997); Gschnitzer (1988, 1993); Raaflaub (2000); contra Thomas (1981: 42): the *polis* is "an anomaly in the context of the larger Mediterranean and Near Eastern worlds."

4 Aristotle, *Politics* 1273a, 4–9.

5 *Wenamon* XXXI, see J.A. Wilson, (1945): for discussions of the assembly in Phoenicia, Carthage, and the Carthaginian overseas settlements, see Bondi (1995) and Tsirkin (1990); the denial by Davies (1997: 33–4) of knowledge of the assembly of citizens, which he sees as almost impossible to detect in the East, provides good evidence for the "calamitous

cleft" between Graeco-Roman studies and Ancient Near Eastern and Semitic studies that he sees as hindering study of such interconnections.

6 I. Morris (2003); one result was the occurrence at conferences of panels dealing with these questions, such as "Mobility and connectivity in the Archaic Mediterranian: Explaining Mediterraneanization," which was given at the conference of the Classical Association at Cardiff University, April 2010.

7 Hansen, Mogens Herman (2000a: 18–9 and n.16): "instead of economic self-sufficiency it is now economic interaction between the city-state [*sic*] which I take to be an essential characteristic of a city-state culture."

8 On the interaction of complex societies, Miller (1997: 246–7).

Chapter 1

Seafaring in the Mesolithic Mediterranean

Obsidian Aquisition as Evidence for Seafaring

The Aegean

While seafaring is attested in the Pacific with the arrival of human beings in Australia some 40,000 years ago (O'Connell and Allen 2004),[1] the earliest evidence of Mediterranean seafaring dates to the tenth to ninth millennium BC: obsidian found in Mesolithic levels in the Franchthi Cave in the Greek Peloponnese (Broodbank 2006).[2] Analysis has identified with great precision the source of obsidian as the Cycladic island of Melos (Tykot 1996; Tykot and Ammerman 1997). Since Melos had never been attached to the mainland during the Holocene, the obsidian must have been brought by sea.

According to Perlès, a specialist on the Franchthi Cave and obsidian, the quantities found are too small – at most 1 percent of the total lithic material – to have been the result of regular maritime expeditions to Melos by the occupants of the cave, and she suggests occasional collection or very sporadic acquisition through exchange routes (1990a: 30; 2003a: 81). Later, in the Upper Mesolithic, the amounts of obsidian increased thirtyfold, but they were still quite small: obsidian made up only 3.15 percent of the total lithic material (Perlès 1990a: 48). At that time, the material was imported in unworked blocks and worked on the site.

According to Perlès, the acquisition, working, and distribution of Meli obsidian carried out by individual users who traveled to acquire their own supplies, or came upon it as a side benefit during fishing trips. Rather, she argues it was collected and distributed by specialists (Perlès 1990b; 1992). Her reasoning is that obtaining the obsidian would have required a long trip by both land and water, expert knowledge of the location of the source and of the best route there, access to a boat, expertise in navigation, and time away from other tasks to undertake the long trip. This would have precluded all but a few determined venturers. She suggests, therefore, that the bearers of obsidian to

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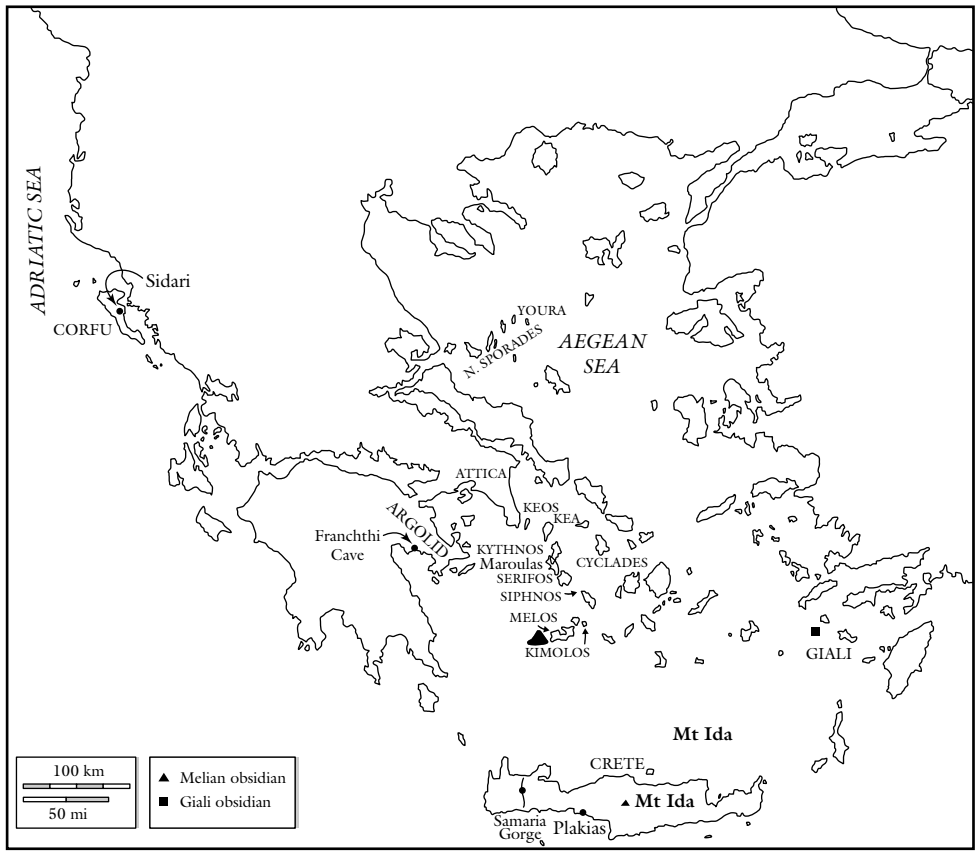


Map 1.1 Obsidian in the Aegean.

Franchthi were specialized seafaring groups who pre-formed the obsidian into cores on Melos for transport. Because great skill was required in knapping, and this was unlikely to have been a skill acquired by a householder for his own production – one man could produce far more blades than a single household, or even a small village, required – Perlès suggested that the obsidian gatherers also acted as itinerant "middlemen," moving from village to village, knapping the obsidian as required. The amounts found at Franchthi seem to preclude any great activity on the part of the inhabitants of the Franchthi Cave in this "industry" of acquisition, transport, and production.

The missing element in this picture – people who do seem to have been involved in the acquisition, transport, and distribution of obsidian – may be provided by the recently excavated Mesolithic island site of Maroulas on Kythnos, whose occupation is contemporary with the Franchthi Cave (Sampson 1998; Sampson *et al.* 2002). Obsidian from Melos has been found at Maroulas in large quantities, amounting to 16.87 percent of the total lithic assemblage (as compared with 3.15 percent at Franchthi). Cores were found, indicating that obsidian was worked on the site, although, according to the excavators, the large proportion of obsidian tools (36.36 percent) may mean that some were imported as finished products (Sampson

et al. 2002). The occurrence of obsidian at Maroulas adds substantially to the evidence of Franchthi Cave for Aegean seafaring in the Mesolithic, and it also suggests a possible explanation for the small amounts of obsidian found at Franchthi: that site lay near the end of an obsidian transport route that ultimately led to the Argolid: Melos, Kimolos, Siphnos, Seriphos, Kythnos, Keos, Attica, Argolid.

Maroulas is also the only Aegean island site to have provided evidence of occupation in the Mesolithic in the form of dwelling remains and burials (Sampson *et al.* 2002). Three circular flagstone floors more than 3 meters in diameter and bordered with small and large stones have been found, as well as three flagstone constructions in irregular ellipsoid form that have not been so well preserved. Under the surface of one of the circular floors, an adult burial was discovered under a large slab. Another burial was that of a child interred with the bone of a dog. In all, nine burials were found, most were only partly preserved; other burials appear to have been destroyed by sea erosion. The burial customs (inhumation under the floors of houses, and burials associated with dogs), and the use of circular dwellings, have parallels in the Natufian culture of Syria and Palestine, dated 12,500–10,200 BP,[3] and are thus in the same time frame as the early finds of obsidian at Franchthi Cave (Davis and Valla 1978; Valla 1998: 187; Davis 1991). People, presumably families, were living on Maroulas for at least part of the year, although they may have incorporated their stays into a seasonal travel pattern in order to maximize their resources.

How did these earlier obsidian carriers cross the sea? For this date, there are no preserved remains of boats in this area, and reed vessels seem to be the likeliest possibility. To test this, in 1988, a group of archaeologists and students used a reproduction of a double-prowed papyrus vessel propelled by oars on a test voyage from Laurion in mainland Greece to Melos (Tzala 1995), a route perhaps similar to that taken by the carriers of the Franchthi obsidian, had they gone part of the way overland. The modern trip involved a full-time crew of six, with an additional rower occasionally used, and required seven days (not counting delays caused by adverse weather). Reed boats were in use in Corfu in the 1960s (Sordinas 1970: 31–4 and plates 1, 2), and papyrus or reed boats are still used in Sardinia at the regatta festival of fishermen held annually in August ("Is Fassonis") at Santa Giusta, in the vicinity of Monte Arci, the principal Sardinian obsidian source.

Another Aegean island site that has yielded Melian obsidian in Mesolithic levels as evidence of maritime visits is the Cyclops Cave on Youra, one of a group of islands (the "Deserted Islands" – Kyra Panagia, Youra, Psathoura) in the Northern Sporades (Sampson 1998; Broodbank 2000: 116; Sampson, Kozlowski, and Kaczanowska 2003). Other small Mesolithic sites have been found in the island group, and Sampson (1998: 20) reports three submarine cavities that are likely sites and await investigation.

Fifteen obsidian artifacts, including seven microlith tools, were found in the upper levels of the Cyclops Cave, but the absence of obsidian cores suggests that the tools were brought to the site ready to use. Identical obsidian microlith forms are known from the Antalya region of Anatolia and from the Öküzını Cave on the Cilician coast (Sampson *et al.* 1998; Sampson, Kozlowski, and Kaczanowska 2003: 128), as well as at Belbidi, and Pinarbasi in central Anatolia. Although no direct connections can be traced between the Aegean cave and Anatolia, it is probable that the people from Mesolithic sites on the Aegean islands had contacts with western Anatolia, to which the Northern

Sporades from a natural island bridge (van Andel and Shackleton 1982; van Andel 1990; Cherry 1990: 192–4). The fact that some artifacts from the cave were made from local siliceous rocks suggests that the island also had links with the Mesolithic of mainland Greece. It may even have been connected to the mainland, or been within very close "stepping stone" range of it, within human history (see Map 1.1) (Cherry 1990: 165–7).

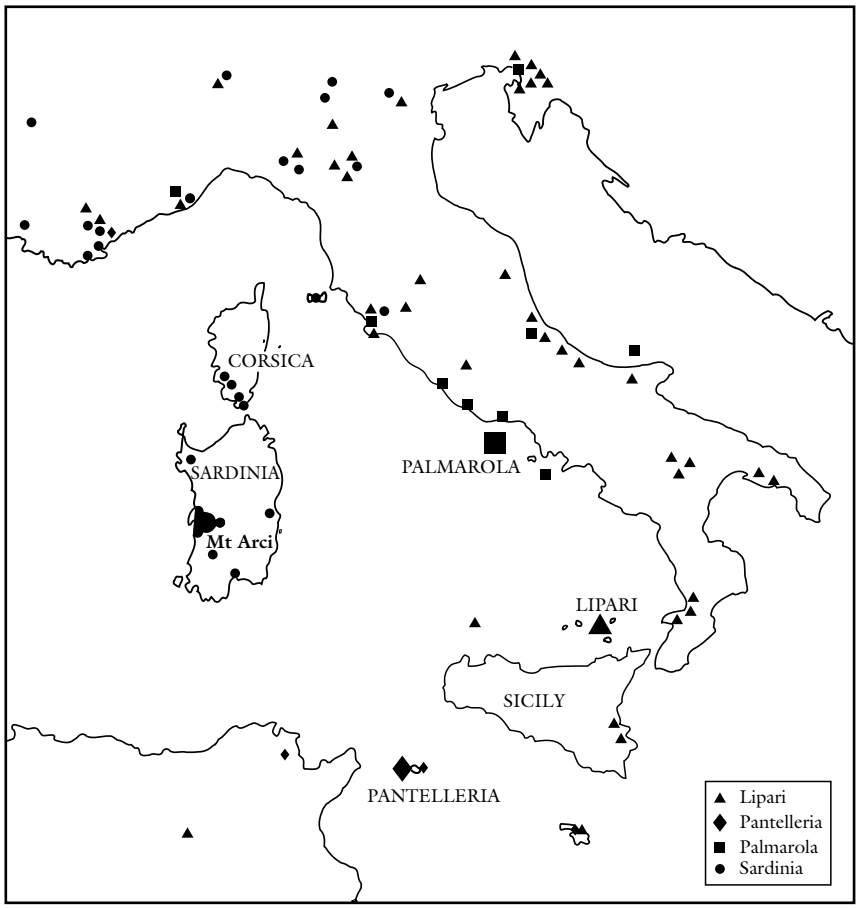
The evidence thus suggests not only considerable seafaring but also the existence of a "complex network of trade activities and large-scale movements in the Aegean and the Greek mainland, extending to Anatolia and indirectly even to the Levant, in the ninth millennium BC" (Sampson 1998: 20–1; see also Renfrew and Aspinall 1990). This is in keeping with the Mesolithic lifestyle, which was generally one of seasonal migrations in search of a variety of resources, with the same campsites being visited repeatedly in an annual cycle. In fact, Broodbank (2000: 115) suggests that part of the Mesolithic population of the islands spent periods of the year moving around the Aegean, likening them to those who "colonised the sea" in early Melanesia (Gosden and Pavlides 1994). In such a situation, sites are difficult to recognize archaeologically: they are "spots on the landscape to which people return regularly," within the context of continual movement within the larger maritime area, and such "occupants" are unlikely to leave many traces behind them (Gosden and Pavlides 1994: 169). Yet the occupants did leave behind traces of a network of exchange focused on obsidian, which included other worked stone and stone-working methods, and surely other, ephemeral materials. Perhaps most important, it would have served as a network of information.

Central Mediterranean Obsidian Sources and Routes

While Melos was the main source of obsidian in the Aegean,[4] other important sources of obsidian existed in the central Mediterranean. Perhaps the best known of these sources was Lipari, one of the Aeolian islands. At about the same time that people from the Franchthi Cave first acquired obsidian from Melos, people seeking obsidian visited (but did not settle) the Aeolian Islands, especially Lipari, perhaps attracted by the fiery displays of its volcano (Leighton 1999: 28, 33–4, 72–3). Obsidian would have been easily collected, and there is evidence that reduction into pre-cores occurred on the island long before any settlement took place (Leighton 1999, 75). In the Tyrrhenian Sea, the earliest evidence currently comes from Capri, where from the Middle Neolithic (end of fifth and early fourth millennium) finds of Lipari obsidian have been made in the Grotta delle Felci, the local sanctuary. These are especially significant since they suggest that early exchange may have taken the form, not so much of "trade," as of "dedications" by visitors to holy sites.

Some prospectors at Lipari surely came from nearby Sicily, which was not a true island and had been continuously inhabited since the Palaeolithic.[5] The earliest exported Lipari obsidian there was discovered in a Mesolithic context (Aranguren and Revedin 1996: 35) and is thought to have been the result of exploration and possibly sporadic exchange rather than systematic exploitation.

At the end of the fifth millennium settlement on the Aeolian islands began when people from Sicily established themselves at Castellaro Vecchio on Lipari and



Map 1.2 Central Mediterranean obsidian. Adapted from Ammerman 1985.

subsequently at Contrada Rinicedda on Salina (Cavalier and Bernabo Brea 1993–4: 987–8; Castagnino Berlinghieri 2003: 45; 51, 121). Both these sites have provided strong evidence for the working of obsidian, which suggests that it was the motivation for their establishment. The large numbers of flakes found in all the Aeolian settlements, from the most ancient (Castellaro Vecchio) up to the final Eneolithic, assure that the local population directly controlled the operations of extracting and working the obsidian (Nicoletti 1997: 260). Obsidian from Lipara was carried regularly to the Italian coast by sea, where the Calabrian Acconia project has demonstrated its reduction and distribution to a number of settlements of the Middle and Late Neolithic (Ammerman 1985; Malone 2003: 283). Obsidian from Lipari also reached southern France, perhaps by way of Corsica, and from there it was carried to central and northern Italy and Croatia (Robb and Farr 2005: 36). The data from Lipari suggest that the height of obsidian extraction and working occurred toward the end of the Neolithic (the period called the Diana *facies*), with a subsequent progressive decline in the Chalcolithic and total disappearance at the beginning of the Bronze Age.

In the central Mediterranean, in addition to the Aeolian islands, Sardinia and the small islands of Pantelleria and Palmarola (one of the Pontine Islands) were sources of obsidian, and they show similar patterns of late settlement (Tykot 1996). The largest and most heavily exploited of these sources was Monte Arci in Sardinia. The obsidian from that site was of the highest quality, and it was widely distributed to Corsica, central and northern Italy, and southern France (Tykot 1996: 61; Walter 2000: 145). It was probably the presence of obsidian that attracted settlers to the island in the sixth millennium. The sources of obsidian found at the small islands of Palmarola and Pantelleria were less heavily utilized. The obsidian from Palmarola is not of high quality, but the island was easily accessible from the mainland, and obsidian could be picked up on the beach; some was found on the Tyrrhenian coast of Italy at the site of La Marmotta (Walter 2000: 143). To the south, the island of Pantelleria, which lies 200 kilometers southwest of Sicily, played a subordinate and localized role in the distribution of obsidian by the middle of the sixth millennium, with material from the island being carried to the tiny neighboring island of Lampedusa, and to Sicily, Malta (150 km distant), and Tunisia (113 km distant) (Camps 1986: 40, 41, 44; Trump 1963; Nicoletti 1997; Vargo, Tykot, and Tosi 2003).[6]

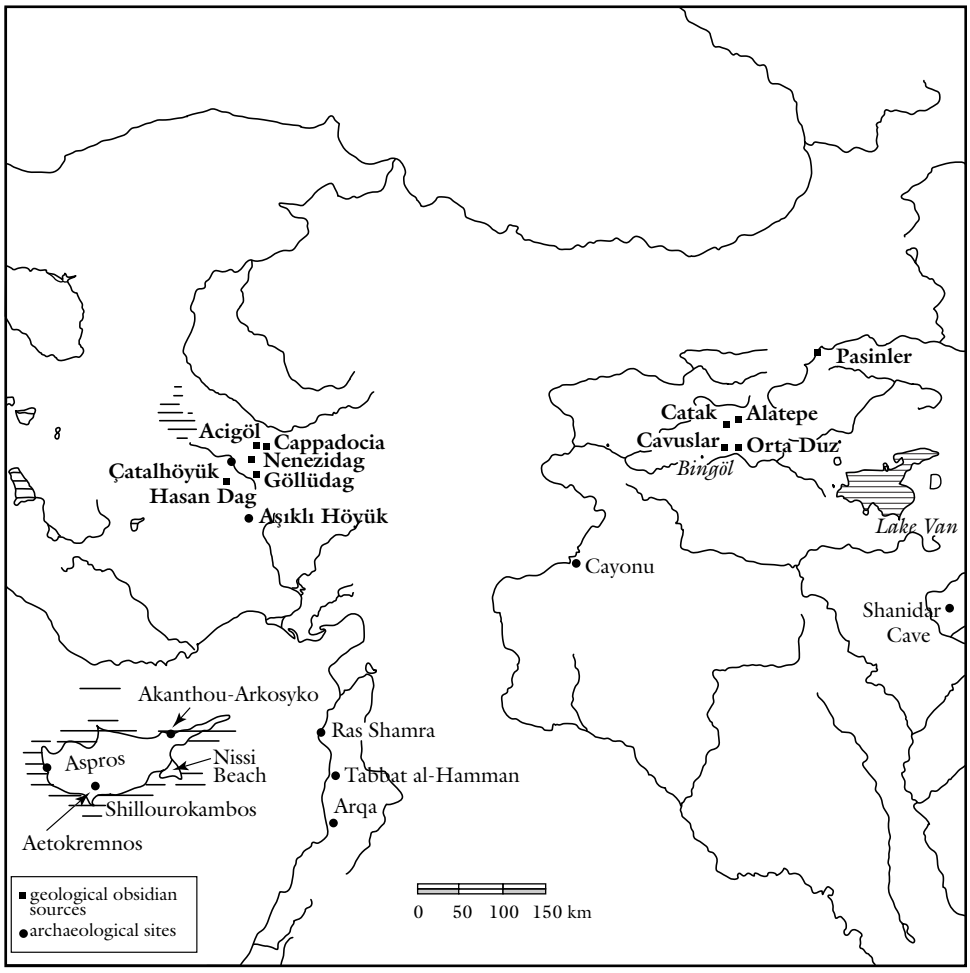
Anatolian Sources Of Obsidian

Another major source of obsidian lay inland in Anatolia, where it occurs principally in two volcanic areas: in the Lake Van region in eastern Anatolia, and in Cappadocia in south central Anatolia (Renfrew, Dixon, and Cann 1966: 35). The travels of Anatolian obsidian also provide important evidence for trade networks and cultural contacts, although these were mostly by land.

In the Upper Palaeolithic small amounts of Anatolian obsidian traveled substantial distances – from Van some 400 kilometers to Shanidar Cave in the foothills of the Zagros Mountains of Kurdestan in Iraq, and from Cappadocia some 350 kilometers to Antalya on the southwest Anatolian coast. In the Mesolithic Anatolian obsidian continued to travel, providing information about potential routes. Small amounts reached as far south as Jericho in the eighth millennium BC (a period called the Pre-Pottery Neolithic A (PPNA)).

By the seventh millennium the pace of obsidian transport had stepped up dramatically. Large amounts were found at the Turkish site of Çatal Hüyük (6300–5500 BC) (Renfrew, Dixon, and Cann 1966), where the excavators suggest its working was a specialization. The craftsmen themselves probably fetched the material from the source (approximately 200 km distant), or sent others, who then can be called traders, "in the strict sense that they were specialists in the transport and exchange of materials for gain" (Renfrew, Dixon, and Cann 1966: 52)

These travels of obsidian in the Pre-Pottery Neolithic East occurred within, and did much to create, a cultural interaction sphere that linked sites from southeastern Anatolia, the uplands of the Tigris and the Euphrates, the Levantine Corridor (the passage from the northern Negev through the Jordan (Rift) Valley to southern Anatolia (see Simmons 2007 and Map 1.2), and extending as far south as the Sinai (Braidwood and Braidwood 1940: 222–6; 1957; de Contenson 1977, 1983: 61–2; Bar-Yosef and



Map 1.3 Anatolian obsidian sources. Adapted from Gratuze 1991.

Belfer-Cohen 1989; Gopher 1989; Cauvin 1991; Garfinkel 1993; Steadman 1996: 147–8; Bar-Yosef and Meadows 1995; Bar-Yosef 1998; Peltenburg *et al.* 2001b: 55–6; Por 2004; Finlayson 2004). These interconnections were first noted by Braidwood, who suggested the terms "co-tradition" or *oikoumene* to indicate the cultural similarities: food-plants and food-animals, housing forms, types of flint and ground stone tools, obsidian bladelets, and, eventually, pottery, all made in much the same general way, and clay figurines of the "mother-goddess" type (Braidwood and Braidwood 1957: 79; see too Gopher 1989). The sphere also encompassed the earliest metallurgy – the cold working and annealing of native copper – which occurred in eastern Anatolia in the eighth millennium at the agrarian site of Çayönü Tepese (Muhly 1989a; Muhly, Stech, and Maddin 1998), and at the site of Aşıklı in central Anatolia, where the economy was based on hunting (Esin 1995). The *oikoumene* goes by various names, as the "aire culturelle" (Stordeur 2003: 370), and, perhaps most widely, the "Levantine Interaction Sphere" (Bar-Yosef and Belfer-Cohen 1989).

The sea was also used for the transport of Anatolian obsidian from very early times, although to a much lesser extent than the land routes. In the seventh millennium, after the widespread development of settled farming communities on Cyprus, obsidian reached virtually all the excavated settlements on the island, becoming a useful indicator of significant seaborne connections. During the seventh to sixth millennium, in the Early to Middle PPNB, large quantities of Cappadocian obsidian, including over a thousand worked blades, were found at Akanthou-Arkosyko on the northern coast of Cyprus, possibly exchanged for picrolite, an attractive, easily carved stone used for figurines and ornaments (Sevketoglu 2002).

The seaborne transport of obsidian is also reflected in finds along the Levantine coast (Renfrew, Dixon, and Cann 1966; Yener 2005: 195): at Mersin and at Byblos, dated to ca. 6000 BC (Renfrew, Dixon, and Cann 1966); at Ras Shamra dated to ca. 6410 BC (Schaeffer 1962: 158); and at Tabbat al-Hammam, dated to ca. 6000 BC (Hole 1959). The maritime distribution of Anatolian obsidian even reached Minoan levels at Knossos on Crete (Panagiotaki and Evans 1998; Renfrew, Dixon, and Cann 1966: 48).

Island Occupation/Visitation by Sea as Evidence of Seafaring

Evidence for Mesolithic seafaring can be traced not only in the travels of obsidian but also in the witness of human activity on previously unoccupied islands to which access must have been gained by sea. Several such cases have been argued, although with varying degrees of credibility.

The Mesolithic visitation of Cyprus

The earliest and best attested case of human visitation and use of islands in the Mesolithic involves Cyprus (Simmons 2001; Simmons 1991; 1999: 208–9; Manning 1991; Cherry 1990: 163). At about the same time that humans first visited Melos and the Aeolian Islands for obsidian (10,800–9600 BC), there is evidence of Mesolithic presence for at least short periods of time at a rock shelter at Aetokremnos, on the southern coast of Cyprus, at the time probably near but not on the sea. The group perhaps consisted of a hunter/gatherer band of some 25–50 individuals, although Simmons (1999: 322) believes it likely that far more individuals were involved in order to provide a sustainable population. There is no evidence for the presence of women or children; however, they may not have been included if the camp was occupied only seasonally by transient hunters.

Simmons (2001: 5) argued that the site was "a limited activity faunal processing locality" for Mesolithic pigmy-hippo hunters, whose activities were responsible for the extinction of the pigmy hippos on the island (Ammerman and Noller 2005; Simmons and Mandel 2007). The situation is not entirely clear, however (Bunimowitz and Barkai 1996; Vigne 1999). The site contained four major levels, separated by only brief intervals, only two of which provided evidence of human activity. Stratum 4 contained the majority of the finds of animal bones (over five hundred pigmy hippos of various ages, three dwarf elephants, and a few other birds and animals); about 30 percent of the bones had been burned, most of them severely, which has been interpreted as evidence

of human activity. Stratum 4 also contained eleven "cultural features," most of which were "casual hearths." The majority of the artifacts (over a thousand chipped stone artifacts, stone and shell beads, and a few ground implements) were found in Stratum 2. Stratum 1 was a mixed context, and Stratum 3 was sterile. Thus there seems to have been little if any overlap between levels with evidence for human activity and the level with animal remains.

Whatever the reason for their presence, the visitors were unlikely to have lived at the shelter, which was not large enough for a person to stand upright; however, the distance from the mainland practically guarantees that they spent some time on the island, for daily "commuting" would have been impossible. That a base site nearby is probable, but it has not been discovered.

What drew these visitors to Cyprus is a matter of speculation. Harsh conditions on the mainland – the cold and dry period called the Younger Dryas – following the period known as the Early Natufian in which benign conditions that had fostered a population explosion (Bar-Yosef and Valla 1991), may have forced a search for new resources and provided the incentive for people to seek out the island's resources known from earlier reports of adventuring. There are no obsidian sources on the island, and Held (1989) described Aetokremnos as a "difficult colonization 'target'" especially for a largish group using very basic craft.

The mainland origin of the visitors is not known, but it must have been in the Cyprus-facing coastal areas of southeast Turkey or the Levant. The stone tools at the site have some similarities to materials in both of these areas, but they are a selective assemblage, unique to Cyprus, and probably reflect a specialized adaptation to local conditions (Simmons 1999: 319–20), reinforcing the idea that their arrival had been preceded by previous visits or exploration. Simmons (1999: 319–20) favors a Levantine origin on the basis of the site's location on the south coast of the island, and the lack of any contemporary sites on the island's north coast, which offered the closest access from Anatolia. Moore's list of more than a dozen potential sites in the Levantine coastal area in Mesolithic 1 and 2 (1978: figures 5 and 6), may provide some support for a Levantine origin: the evidence cited for the use or brief occupation of the site of Byblos, possibly in the Mesolithic, demonstrates the ephemeral nature of such evidence (p. 330).

In the Amuq Valley, which provides access to the sea across a generally mountainous and forbidding area, stray evidence for Paleolithic activity has been found on the hillsides. Such sites would have been attractive to Mesolithic hunters and may have offered temporary shelter to groups who made visits to Cyprus.[7] For example, Upper Paleolithic remains were found at Üçagızlı Cave, about 15 km south of the mouth of the Orontes River (Minzoni-Deroche 1992), an area with many caves and rock shelters and with access to the Mediterranean through a ravine to the Adana Plain and to the north via the Karasu and Orontes rivers to the open sea (Garrard, Conolly, Moloney, and Wright 1996). Looking to the southwestern Anatolian coast, the cave at Öküzını provides evidence of prolonged occupation by a well-established group at a site near the coast and suggests another possible home base for the adventuresome hunter-gatherers (Otte *et al.* 1995).

The site of Aetokremnos was utilized for a few hundred years at most, and the variety of evidence supporting different sites of origin for the visitors may simply reflect the fact that no one group visited the island, but that it was subject to repeated visits by groups

from various locations. In the end, Simmons argues, the visitors abandoned the site. He saw no evidence that they remained on the island, or that their descendants contributed to the later Neolithic settlements on Cyprus that are dated from ca. 8200 (Simmons 1999: 322, 323). However, new discoveries have begun to fill this apparent gap in island habitation, suggesting that, even if not permanent occupation, at least sporadic contacts were maintained with the mainland (McCartney 2005; McCartney and Todd 2005; Peltenburg *et al.* 2003: 96–7).

The remains of two Mesolithic campsites on the island, at Nissi Beach (Ayía Napa) and Aspros, that date between 10,000 and 9000 BC (Ammerman *et al.* 2006), demonstrate that the occupation/use of Aetokremnos was not an anomaly. At Nissi Beach, some 230 stone tools were found. These campsites, which reflect an extensive familiarity with the Cypriot coast, were probably occupied seasonally and only for short periods, as the rocky territory of their sites is not suitable for long-term occupation. They offer more evidence for seafaring on a regular basis in the eastern Mediterranean from an early date, at more or less the same time as the evidence from Franchthi. At least 20 more such sites are thought to lie submerged because of the sea incursion that occurred at the end of the last Ice Age; their underwater remains still await discovery.

Seaborne Mesolithic occupation in the Adriatic

Mesolithic occupation by sea has been attested in the Adriatic at Sidari, on the eastern coast of Corfu, in the late seventh to early sixth millennium. These people appear to have lived on shellfish, creating a shell midden. They made very primitive microliths using flint that they apparently brought with them (Sordinas 1969; 1970). The lithic assemblage has little in common with the stone tools of the Greek mainland, and Sordinas has proposed that after the island of Corfu became separated from the mainland in the sea regression at the end of the Palaeolithic people began island hopping along the Adriatic coast in small reed boats – similar to those still in use in the 1960s by lobster fishermen on the island – bringing contact with the cultures of the Italian mainland (1977; 2003: 96; 1970: 31–4 and Plate 1, 1), a situation also suggested for the Franchthi Cave. The settlers were succeeded by Neolithic inhabitants, but only after a break in occupation.

Possible Mesolithic occupation of Sardinia and Corsica

Possible early human occupation by sea, going back even to the Palaeolithic, has been argued in the case of the large islands of Sardinia and Corsica.[8] This, however, is a contested issue. It is, however, generally agreed that firm evidence for human occupation on these islands comes from the beginning of the Mesolithic, ca. 8000 cal. BC (Tykot 1999: 69). This is based on the discovery of human bones in the Corbeddu Cave on Sardinia and evidence for human occupation at several rock shelters on Corsica, which was separated from Sardinia by an easily crossed strait (Tykot 1999: 69). The remains have morphologies "outside the range of modern human variation and [are] probably due to endemism in an isolated population" (Spoor and Sondaar 1986 citing Tykot 1999: 69) These Mesolithic settlers must have reached the islands by sea, but this need not have entailed a significant sea-crossing since Corsica was separated from the

Italian mainland by only a brief span of water before the glacial meltdown. Mesolithic people on Corsica and Sardinia, do not appear to have been attracted to, had access to, or have exploited the obsidian resources on Sardinia (Tykot 1999: 69). Broodbank (2006: 207) suggests that the visitors' stay was brief and temporary, possibly a refuge occupation, with no evidence for continuing contact through the exchange of artifacts between the mainland and the islands or for the subsequent development of a Neolithic economy, Vigne and Desse-Berset (1995) argue that, in that it involved built structures and a burial, the occupation of Corsica was a true colonization and that it was continuous. They also see Mallorca as providing evidence for true colonization, with artifacts that differ from those of the nearest mainland, supporting a classification as Insular Pre-Neolithic, rather than Mesolithic, culture.

A Mediterranean Interaction Sphere?

It has been noted that the maps tracing obsidian distribution show little overlap between networks operating in the western Mediterranean, the Aegean, and the Levant.[9] Tykot (1996: 61; 1999) even suggests that these networks might have acted, through prolonged distances and difficult maritime conditions, not as systems of common interaction and information flow, but as cultural or ethnic boundaries. But obsidian does not provide the full story. Other, less easily traceable items also traveled – marble, marine shells, ochre, and greenstone (picrolite) for ornaments and (possibly) ritual objects. Some of these were carried along with obsidian, but others had their own networks of distribution. The most important evidence for the crossing of these supposed boundaries, however, consists in the Neolithic expansion of settlement across the Mediterranean, beginning with settlement on Cyprus in the ninth millennium, for which expeditions to obtain obsidian probably provided the cognitive map. If there were boundaries, they were porous.

Notes

1 For a useful discussion of claims – and evidence – for very early use of the sea by humans, or their predecessors, see Broodbank (2006).

2 Obsidian was also found in the Aegean on Nisyros and on Antiparos in the form of small round pebbles, but these sources were not widely used either, see Evans and Renfew (Evans and Renfew 1968 Appendix IV). There was also a source on the island of Giali that was used for stone vases in the Late Neolithic; however, it was not of good quality for other uses and had a very limited distribution (nearby Kalymnos, Kos, and Rhodes; Saliagos on Greater Paros; and Crete) (Cherry 1985: 15). See web site: http://www.fhw.gr/chronos/01/en/intro/obsidian.html (accessed May 19, 2011).

3 All dates are wide estimates, but the "present" of BP was fixed for analytical reasons at a single point, the year AD 1950, see Wikipedia, "Before Present."

4 Small amounts of unworked obsidian of lesser quality were found at Antiparos; obsidian from Giali was used to make vases in the Neopalatial Period (Betancourt 1997a).

5 The problem of the continuous existence of the strait throughout the Pleistocene is a matter of debate. Paleontologists maintain that the evidence for mammalian fauna of the final

Pleistocene is so abundant that they could not all have reached the island as a result of hazardous crossings or by chance; on the other hand, opportunities for access must have been brief and restricted, for the horse, ibex, chamois, and wolf never made the crossing (Mussi 2001: 89–90, 200–2).

6 http://www.let.rug.nl/ItalianArchaeology/abstracts15a.htm (accessed August 24, 2008).

7 Any evidence from valley lowlands would probably have been buried under later natural sediments, cultural deposits, or large mounds, which would have completely obscured any earlier use of the area.

8 Claims: Hofmeijer and Sondaar (1992, with refs); recently, Melis and Mussi (2002) have argued for an Upper Palaeolithic occupation on the basis of a "controlled stratigraphical postion" of tool types that fit well into this period; this suggestion has not as yet received independent evaluation, although Broodbank (2006: 206) sees the tools as "further confirmation" of human presence. Palaeolithic occupation is disputed by Cherry (1990: 175–8; 1992); Vigne (1990); Tykot (1992; 1999: 68–9).

9 Evans and Renfrew (1968: 105) cite finds of a few pieces of Anatolian obsidian (from Çiftlik) in Crete.

Chapter 2

The Neolithic Revolution/ Transition

What was the Neolithic?

The Neolithic (New Stone) Age is traditionally defined by the use of polished stone tools and a change from hunting and gathering (the Mesolithic Age) to reliance on the cultivation of plants as a primary food source – "taking annual plants and propagating them in niches to which they would not normally have access" (Sherratt 2007: 3).[1] In the ancient Near East, the Neolithic can, roughly speaking, be said to have begun around 10,000 BC and to extend to 4500 BC.

Recently there has also been a move to more inclusive definitions based on other facets of life. Thus Cauvin (1994) postulates a change in human mentality, a recognition that people could affect their environments. He saw this as the "invention of the gods," and as attested by the production of figurines that he interpreted as cult figures of the bull and the goddess. While it is difficult to read meaning from these enigmatic figurines, which have also been interpreted as dolls or aids to initiation, another aspect of Neolithic life that is perhaps more easily "read" is changes in the built environment (Hodder 1990, 1998; Watkins 1992; 2005).

The manipulation of building to create symbolic meaning is evidenced by the presence at almost all excavated settlements of "special" buildings that clearly go beyond the needs of ordinary domestic life (Özdoğan and Özdoğan 1998). These buildings are in most cases larger than the other buildings in the settlement, with solid stone foundations and special attention paid to the construction of walls. Features often found in them are lime plastered floors, often colored red; free-standing stelae as large as 3 meters in height with relief carvings of animals and other creatures; and the skulls of aurochs (wild cattle), which are often hung on the walls. Examples range from the fairly small and simple, as at Aşıklı, to the monumental, and include significant buildings at Çayönü, Nevali Çori, Çatalhöyük (where every "house" seems to have features of a "temple"), and Göbekli Tepe (which apparently

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had no residential buildings, being a regional cult center). These buildings were often "buried" after use; in some cases an entire settlement was buried and rebuilt according to a new plan, indicating a strong degree of control on the part of the community's leaders.

A third crucial element in the Neolithic was increasing mastery of pyrotechnology and its various applications. For millennia fire had been used for cooking and for improving the flaking of obsidian and flint (Muhly 1989a: 7–8); in the Neolithic a new application was the production of lime plaster. Making lime plaster required limestone to be heated to 800–900 °C, slaked in water for days or months, mixed with various additives, and made into a paste to suit the particular application (Kingery *et al.* 1988; Hauptmann 1991: 400): finishing floors and walls, coating skulls in secondary burial, and making vessels (White Ware). The vessels had a limited use since, while waterproof, they were not fireproof, and could not be used for cooking over a fire; they did, however, have a useful sanitizing property, perhaps preserving food noticeably longer.

Fire was not yet used in the production of clay pottery, although small clay figurines were sometimes "baked," perhaps accidentally. For this reason, this period is called the Pre-Pottery Neolithic (PPN), a long period of time in which containers for gathering and cooking were made of plaster, stone, wood, or woven basketry. The PPN is divided into two phases by technical differences in the stone tools used, an earlier PPNA, a period of experimentation with plant cultivation and animal domestication, and PPNB, when the domestication of both plants and animals was fully developed. The use of pottery began only in the seventh millennium, in the last phase of the Neolithic, called the Pottery Neolithic (PN) (see Chapter 3).

It would have been a small mental jump from the heating of limestone to produce plaster to the idea that perhaps heating other rocks might similarly transform them, and thus to begin the process of metallurgy. Nonetheless, it took millennia. Bits of native (pure) copper had long been collected, perhaps admired as attractive oddities, but their potential was limited as they could not be drilled to form beads. At some point, however, it was discovered that they could be pounded into thin sheets and rolled to form beads. But excessive working made the copper brittle. Then it was discovered that applying fire to the pounded copper (annealing) would return its flexibility, so that it could be made into useful objects such as hooks and awls. Meanwhile, malachite, an attractive blue-colored copper carbonite, was often worked into jewelry (unlike native copper, it could be drilled to make beads): for a long time there was no recognition that it was a form of copper that would be transformed by fire. Smelting was perhaps discovered when malachite was accidently dropped into the fire, to reveal that it changed into copper. Other stones, unrecognized as ores, also accidently revealed new properties when they were treated by pounding and chipping as if they were flint or obsidian. Much discovery was fortuitous, but analogy must have played a role as well. As a transformative process, the smelting of copper may have been associated with magic (Budd and Taylor 1995). The making of plaster was similarly transformative, changing the form of limestone (Clarke 2008), and a magical property may have been attributed to the use of lime plaster on house surfaces, skulls, and vessels.

These changes did not occur suddenly. In fact, the transition from reliance upon hunting and gathering to the cultivation of plants took over 2,500 years in the Levant (Ammerman and Cavalli-Sforza 1984; Ammerman and Biagi 2003);[2] The transition also occurred independently in a number of regions of the world, and at varying times; in a few isolated areas, people today still practice an economy of hunting and gathering.[3] Thus it is not surprising that there are proponents of indigenous development even when the practice of cultivation, and the particular plants used, seem to others clearly to indicate external transmission.

The first step was sedentary living, at least for part of the year. This would have had the accidental consequence of fostering the cultivation of plants since the harvesting of plants from wild stands naturally favored those wild cereals that did not shatter and disperse their seeds before they could be collected. When collected seeds were intentionally sown, perhaps in order to expand the area of the stand of a certain plant, the selection process favoring those grains that were collectible was set in motion. The domestication of animals began much later.[4] At some sites in southwest Asia, the remains of sheep and goats that display an age structure indicative of domestication date to between 9000 and 7000 BC, while by 7000 there is morphological evidence for the domestication of sheep, goat, and pig (Ammerman and Cavalli-Sforza 1984: 23). Evidence now shows that cattle domestication, as indicated by morphological changes, occurred first in the northern Levant, in the Middle Euphrates basin, in the Middle PPNB (Russell, Martin and Buitenhuis 2005). The practice moved west to Anatolia, first reaching the central plain at Aşikli Höyűk (8200–7500 BC) (de Cupere and Duru 2003),[5] and then Çatalhöyük (7500–6700 BC) (Baird 2006: 13). It is possible that before this time morphologically wild cattle were "managed" – kept under human "control" as free-roaming herds without confined paddocks, as is suggested by the introduction of wild cattle into Cyprus at Shillourokambos (with apparent evidence of pens) at the turn of the ninth and eighth millennia BC (Vigne and Buitenhuis 1999). On Cyprus, however, the discovery of the site of Ais Yiorkis, identified as a special ranching site, suggests that these large animals may have been unwelcome in normal village life; their on-again, off-again presence on the island (disappearing completely during certain periods) may also be a sign that they presented serious difficulties to village life.

Neither plant cultivation nor the subsequent introduction of animal husbandry brought an end to the use of wild plants and the hunting of wild animals – both practices that are still important to many people today. The gathering of nuts and fruits for food and of plants for medicinal purposes provided valuable resources. Hunting continued to play a vital role in the economy and in the symbolic life of the community long after the beginning of plant cultivation. Some animals, especially deer, were kept wild for the hunt. In fact, wild deer were imported by the first settlers on the island of Cyprus, probably adding considerably to the difficulty of the voyage. In the grassland of the steppe, aurochs roamed in large herds, and their pursuit provided an arena for the display of "valor" when life had otherwise become rather routine.

The importance of the hunt is registered most impressively in the many wall paintings of hunting scenes and three-dimensional plastered portrayals of auroch skulls on the walls of the houses at Çatalhöyük in the central plain of Anatolia.

Nor was the interest in aurochs confined to their Anatolian homeland: auroch skulls appear throughout the Anatolian/North Syrian/Levantine interaction sphere, and even in the southern Levant the animal had a large symbolic role, as seen in the mortuary and cult site of Kfar HaHoresh where eight aurochs had been slaughtered and, skulls removed, placed in a pit which was covered over and topped with a human burial (Goring-Morris 2000). This assemblage was then covered with plaster and the human skull was later removed; the auroch skulls were presumably used elsewhere, perhaps for display as at Çatalhöyük (Goring-Morris and Horwitz 2007). In another burial at Kfar HaHoresh, human bones were found arranged in the shape of an auroch.

Why did people adopt farming?

Why people made the change to farming and herding as the primary means of subsistence is a matter of dispute. Farming does not provide immediate benefits and, in fact, even presents some clear disadvantages.[6] While the exact distribution of labor between the sexes is not known, there is evidence that the introduction of agriculture was particularly disadvantageous for women (Simmons 2007: 74). They suffered from the arduous, time-consuming daily task of grinding grain, which was in itself disabling, as attested by female skeletal deformations (Molleson 1994). Women also suffered from the more closely spaced pregnancies that resulted from the apparent bonus of no longer having to carry infants and children while hunting and gathering – children of hunters/gatherers are rarely apart from their mothers and nurse at will, which delays ovulation and provides a "natural" spacing of pregnancies of about four years. Giving birth in primitive conditions is a risk to the mother's life, since there is no way to cope with many birth complications,[7] and the more pregnancies, the more risk. On the other hand, the delay in menarche until 18–20, perhaps caused by a diet low in animal fats, meant that women gave birth when fully grown and better able to handle the stresses of pregnancy and birth. For the entire population, agriculture also brought an influx of new diseases as a result of the introduction of animals into the household and of human crowding as populations rose dramatically. More people were being born, but they did not enjoy long lives: the sum total of all these factors was that individual lifespan declined with the introduction of agriculture.

The identification of the impetus to take up agriculture to a large extent depends on the way the Neolithic is defined – whether it is seen in terms primarily of subsistence, or of some other elements of the economy, such as architectural changes, or the introduction of new ideological or conceptual factors. Those who interpret the change as a shift in subsistence tend to see it as instigated by material factors, most particularly, by pressures on food supplies brought on by the climate change of the Younger Dryas, a period when the climate became drier and colder and thus less favorable to plant growth (Moore *et al.* 2000: 479; Bar-Yosef 2002). On the other hand, those who view the transition in terms of ideology or new forms of conceptualization look to a fundamental intellectual change as the cause, as suggested by Cauvin. We seem to see evidence of this in the "special" buildings, most of them clearly intended for cult, that appear in PPNA/B settlements.

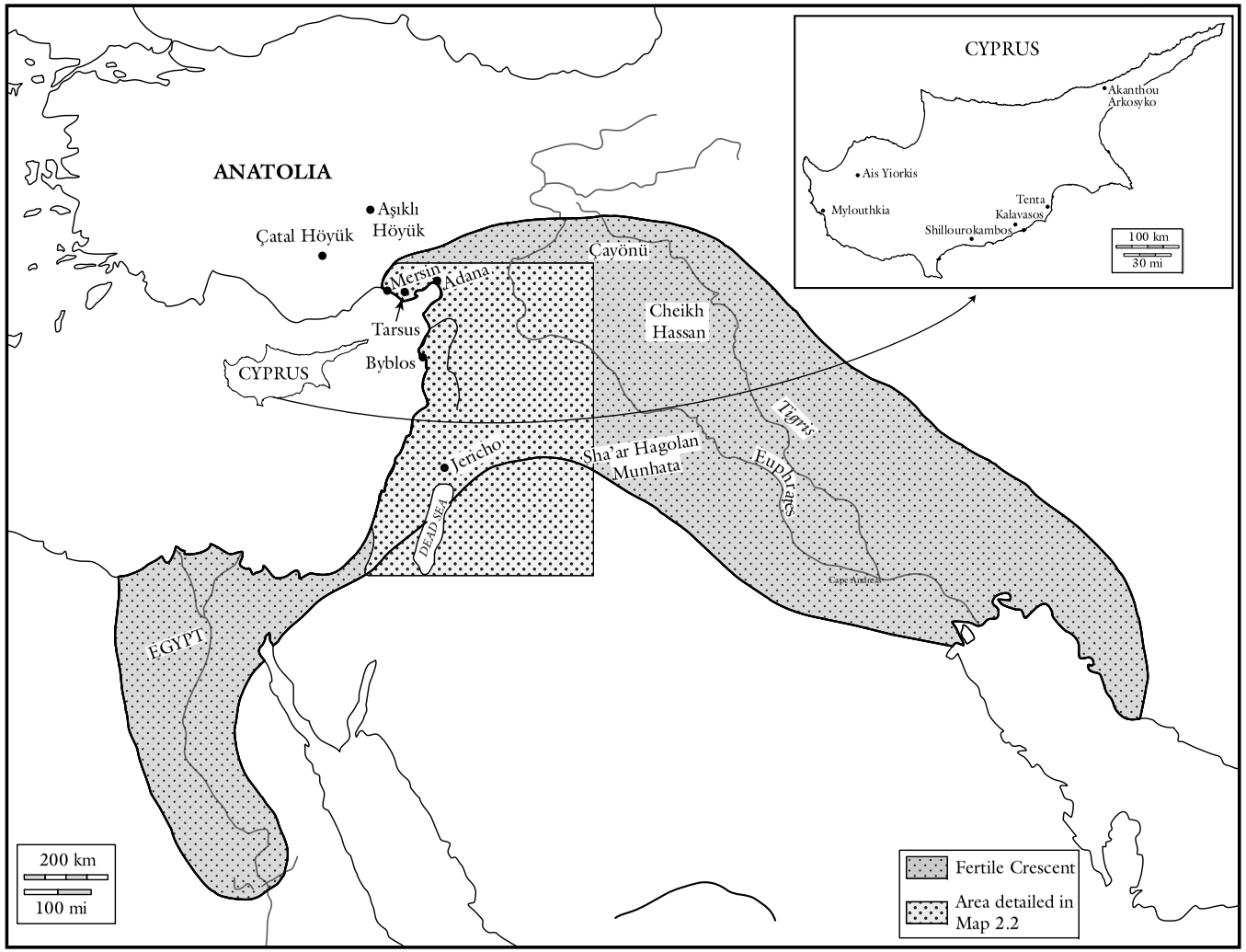
Where Did Agriculture Begin in the Mediterranean Area?

The exact location of the earliest cultivation is a matter of debate; obviously, since it was adopted independently at various times in many other areas of the world beyond the Mediterranean, this could also have been the case in the Mediterranean. Nevertheless, since some plants and animals were more amenable to domestication and more useful (the "founder crops" of emmer and einkorn wheat, barley, lentil, pea, chickpea, bitter vetch (Zohary and Hopf 2000); and sheep, goats, and pigs), its origin and spread within that region can be traced. While the cultivation of grain was long thought to have begun in the Jericho region (Bar-Yosef and Meadows 1995; Sherratt 2007), it is now generally agreed that it occurred somewhere in the Fertile Crescent, an area formed by the intersection of the Levantine Corridor (a series of oases in the Syrian desert and the Jordan Rift), and the area in the north of Mesopotamia between the hills and the desert that Braidwood called the "hilly flanks."[8]

Hallan Çemi

Hallan Çemi, in the foothills of the Taurus Mountains (Rosenberg and Redding 2000; Peasnall and Dyson 2002),[9] which dates to earlier than 8000 BC,[10] is the oldest known permanently settled village in Anatolia. The village's inhabitants were pre-agricultural: they had no domesticated plants or wild wheat or barley, but lived from wild grasses, nuts, and woody fruits, and wild sheep, goats, deer, and cattle. However, they do appear to have been experimenting with the domestication of animals, starting with pigs, an economically efficient animal easily controlled with little labor whose young were easy to tame. The people lived in small round semi-subterranean huts set on stone foundations, probably only used for sleeping, with plastered outside patios for work. Their village had some sort of communal organization: two larger huts 6 meters in diameters with stone benches and plastered hearths appear to have been built for community use – and surely by community resources. An auroch skull found on the floor was probably originally hung on the wall, as at the later site of Çatalhöyük, suggesting that the building had some ritual or ceremonial function. Large quantities of obsidian from Bingöl in the Lake Van area were found at the site; the copper ore malachite, often used as a pigment, was also found, probably originating at Ergani, a site near Bingöl. There was, however, no evidence for the use of copper. The villagers made decorated stone bowls, some adorned with vipers, and carved stone pestles, some in the form of goats' heads. Also of great importance was the discovery of small stone notched batons, suggesting that records of some sort were kept (Rosenberg and Redding 2000: 52–5).

Recently, most see agriculture in the form of plant cultivation as beginning in north Syria, in the Mureybet region of the upper Euphrates, where all seven wild progenitors of the founder crops have been found (Cauvin *et al.* 2001: 107; Lev-Yadun, Gopher, and Abbo 2000; Bar-Yosef 2002). On the other hand, Nesbitt (2004) finds no evidence to support any one region as the "starting point" of cultivation, preferring a hypothesis of polycentric evolution. Similarly, Sherratt (2007) has suggested that the origins of plant cultivation were more widespread, occurring in the many "settlement cells" located in small alluvial fans along the length of the Levantine Corridor.



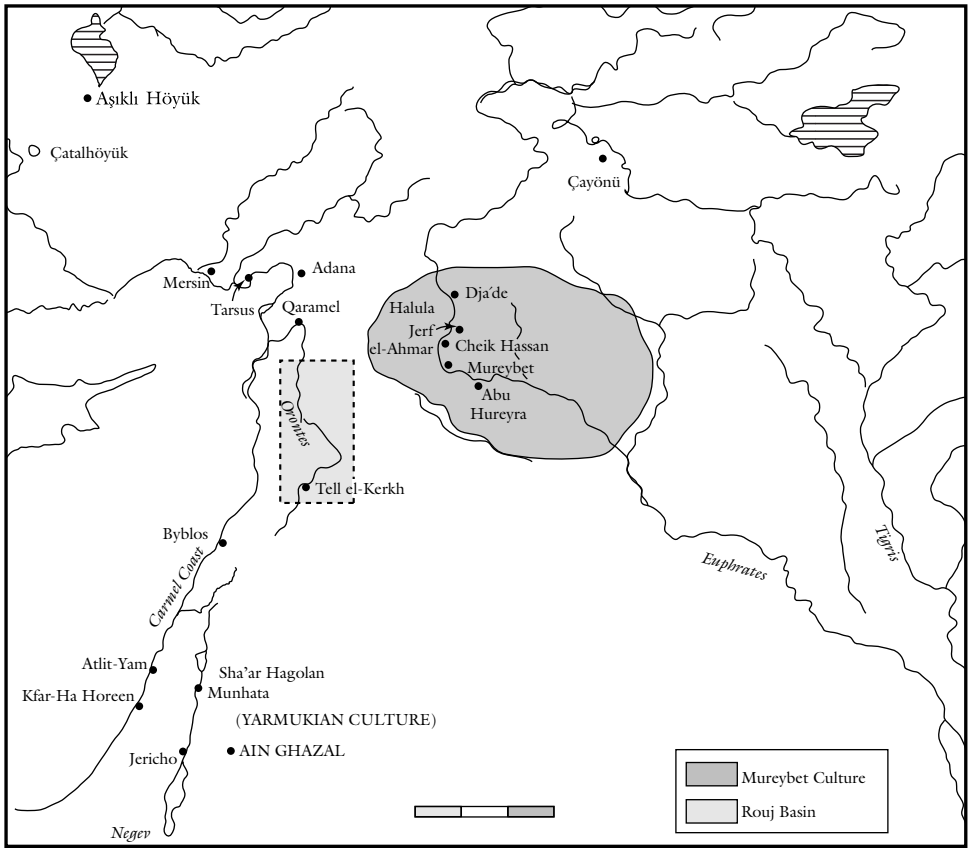
Map 2.1 The Fertile Crescent, Cyprus.

Some Early Farming Villages – the Mureybet Area of the Middle Euphrates

In northern Syria this very early Neolithic culture, named after the site of Mureybet, has been identified at a number of sites.

Mureybet

Occupation at Mureybet (10,000–8700 BC (Cauvin 1977))[11] itself started in the Mesolithic (in Levantine terms, Late Natufian) and continued through most of the Neolithic (Akkermans and Schwartz 2003: 50–2). In the earliest levels (Phase IB and II, ca. 10,000–9000 BC), the buildings were huts of wattle and daub built in round or oval pits with packed clay floors; they lacked hearths, but there were fire-pits in the courtyards between the houses. In the next phase (Phase III, ca. 9500–8700 BC), the houses were connected, and some had hearths and interior partitioning in a radial pattern, leading Peltenburg to call this type of house the Circular Radial Building



Map 2.2 Neolithic Settlements and the Mureybet Culture.

(2004b); some houses had truncated, non-functional pillars, possibly of ritual significance. Two had evidence of painting on the walls, the earliest known in the Near East. At the end of Phase III rectangular buildings with three of four small rooms began to be constructed, and by the final phase (IV, ca. 8700 BC, the beginning of the PPNB period), all the houses were rectangular with several rooms.

Jerf-el-Ahmar

Jerf el-Ahmar (9200–8700 BC (Stordeur *et al.* 1996)), another settlement of the Mureybet culture, is especially notable for its communal buildings (Cauvin 1977, 1980; Akkermans and Schwartz 2003: 52–5; Stordeur 2000; Stordeur *et al.* 2001),[12] a number of which attest to complex community organization and suggest connections between building features and ritual or cult. On the western mound on level 2, about 10 multi-roomed houses, some oval and some rectangular, were built in a circle around a large, round, entirely subterranean building that was divided into six small rooms and had been completely burned. A skull was found in one of the small rooms, and a decapitated skeleton in the central room. A similar large circular structure was found on the eastern mound, with two human skulls at the bottom of a hole in which a pillar rested. Another obviously "special" building, dating to the final phase of the occupation, was about 8 meters in diameter, and sunk 2 meters into the ground. The interior space was not subdivided, but a series of benches along the wall formed a hexagon inscribed within the circle of the building. At each angle of the hexagon a large wood pillar stood, covered in clay, carefully carved and polished, and decorated with a frieze. The fronts of the benches were covered with large polished stone slabs decorated by a continuous frieze of engraved triangles and an undulating line that may represent a serpent. The purpose of the building must have been group assembly and probably cult. The excavators suggest that a smaller round building on the eastern site, which they called the House of the Aurochs' Skulls, may have been used by the elite ("priests"); it contained the results of slaughters of aurochs – the horns and upper skulls of three and a complete skull of another – as well as a string of clay beads on either side of a limestone pendant. The excavators believe the bead ensemble was probably hanging on the wall of the building (Stordeur 2000).

Jerf al-Ahmar was abandoned shortly after 8700 BC for unknown reasons. Although a number of Mureybet settlements seem to have been abandoned at about this same time, other settlements in the area continued to be occupied for some time.

Abu Hureyra

The village of Abu Hureyra (11,100–7000 cal. BC (Moore *et al.* 2000)) was the dominant village in the middle region of the Euphrates Valley, far larger than Mureybet. Occupation occurred in two main phases, the first lasting from 11,100–10,440 cal. BC, the second from the second half of the eighth to the seventh millenium. In its earliest stages (1A) it was a village of hunter-gatherers who lived in pit dwellings with several connected subcircular rooms, roofed with branches and reeds. In the succeeding stages of the first phase (1B, 1C), dwellings were built on the surface of the ground and were still roofed with perishable material, and people took the first steps to agriculture,

probably driven by the cooler drier conditions of the Younger Dryas. The village was now occupied by several hundred people, and they must have devised some regulation to negotiate disputes and to muster and organize the necessary communal effort for the annual gazelle drives that provided the main supply of meat.

At the end of the first phase there appears to have been a period of transition in which occupation dropped and the settlement shifted its location within the general site, possibly in response to the return of warmer, moister conditions. Dwellings probably remained much the same flimsy structures, but since their remains were cleared away in later occupation, this is difficult to determine. In the second half of the eighth millennium the village entered a new stage in its development, expanding to cover eight hectares with a population estimated at 5,000–6,000 at its height (Moore *et al.* 2000: 494). At that point, the people had become fully Neolithic – depending almost entirely on cultivated plants and the herding of goats and sheep – although they continued the annual gazelle slaughter.

The inhabitants of Abu Hureyra in the final, Neolithic stage, built rectangular multi-roomed houses of mud brick, which were rebuilt over and over again on the same sites over many generations. There is no indication of differentiations among the houses, and neither do burials offer evidence for a hierarchy of classes, although the settlement's large size would seem to have required some form of social organization and an authority to enforce communal decisions. There are no archaeological traces of this, however: no large open spaces or large buildings that could have been used for communal meetings, and no "temples" or other apparently special buildings. Some of the residents did develop special skills, such as the making of lime plaster (Moore *et al.* 2000: 495, 503; Kingery *et al.* 1988). The settlement regularly received obsidian from Anatolia and other materials that would have been used by craftsmen – basalt, limestone, and alabaster – from sources up to 130 kilometers away, as well as small numbers of cowrie shells and exotic stones from the Levant and the Taurus mountains (Moore *et al.* 2000: 498). The making of pottery began only at the end of this period.

Tell Halula

The circular radial house plan found at Jerf al-Ahmar has been seen as embodying an element of cult in the home. More apparent evidence of cult was found at the settlement of Tell Halula (7800–6400 cal. BC),[13] where excavators discovered more than twenty painted silhouettes of women dating back 8,500 years, which are claimed to be the oldest human representations yet found in the Middle East. The images, both profile and frontal views, appear to emphasize female fertility. They were painted on the floor of a dwelling and are thought to represent a ritual dance, perhaps reflecting or patterning dances that took place on that floor (Molist 1998; 1999; Molist, M. and J.M. Faura 1999; Garfinkel 2003; Schmandt-Besserat 2007: 49, Fig. 4.3).

Göbekli Tepe – a ritual site

North of the Mureybet settlements, in eastern Turkey on a hilltop some 15 kilometers northeast of Urfa, a quite different site wholly devoted to ritual was

created by hunter-gatherers in the tenth millennium BC (10,000–8000 BC) (Schmidt 2007).[14] They constructed large round or oval groups of unworked stone in which were set T-shaped monolithic pillars of limestone, about 3 meters in height, with a bigger pair of pillars placed in the center of the structure. The pillars bear many relief carvings of animals and other creatures, and life-size freestanding figures of animals set on the walls "guarded" the enclosure. The floors were made of terrazzo, and a low bench ran along the exterior wall. The effect to some extent recalls Stonehenge, but that enigmatic monument was erected millennia later in the third millennium. The structures at Göbikli Tepe were not used as dwellings. While, recently, remains of smaller buildings from the PPNB have been found, as well as a few Epipalaeolithic finds, there are no signs of occupation. At this point, four enclosures have been excavated, but geomagnetic survey reveals that there are at least 20 still buried. The site, clearly not intended for habitation, has been identified as a "temple" or "shrine." Possibly, as is thought to be the case for Stonehenge and similar circles in Britain, it was used as a sort of a pilgrimage site, drawing participants from villages in the surrounding area (which suggests a shared symbolic mentality), perhaps convening only once a year or when new work on the complex was needed. It has also been suggested that the building of the enclosures was itself part of the ritual, and that after each one was completed it was buried and work was begun on a new enclosure (Schmidt 2007).

Like the Mureybet settlements, Göbekli Tepe is situated in the part of the Fertile Crescent that genetic studies have identified as the likely place of origin of einkorn wheat, the first domesticated cereal, but, while the site in its material culture belongs to the PPNA, up to now no traces of domesticated plants or animals have been found. The excavator, however, speculates that the site played a key function in the transition to agriculture, since it would have been necessary to feed the people who quarried the stones, worked them, and arranged them on the site, as well as those who visited to participate in whatever rituals were carried on there. The site was in use until after 8000 BC, when it was abandoned and purposefully covered over.

Several sites in the same area have similar features on a smaller scale suggesting that they shared in a common symbolic system. In the Mureybet settlements, smaller pillars have been found in some dwellings, and Jerf el-Ahmar included a larger communal-type building decorated with relief carving, including an undulating serpent. Nevali Çori is another of these sites, now submerged by the building of the Atatürk dam (Schmidt 2006). Unlike Göbekli Tepe it was occupied as a village, with rectangular drystone-wall buildings. One building was large enough ($16\,m \times 7\,m$) to serve as a communal meeting place; rectangular stone pillars with relief figures of human hands were set into the walls of this building, and two freestanding pillars 3 meters high were placed in the middle of the room.

Large, free-standing anthropomorphic figures of limestone were found, one portraying a male with a large tuft on his head. Another large statue is that of a large bird. A small cat figurine was also found, similar to figurines found at the sites of Dja'de, Jerf el-Ahmar (Guilaine 2001; Stordeur 2003; Muhly, Stech, and Maddin 1998: 535, 541), and Göbekli (Guilaine 2001; Stordeur 2003). A deposit of human skulls was found beneath the floor of one of the houses.

Çayönü

The site of Çayönü, in the Taurus foothills, 40 kilometers northwest of Diyarbakır, is noted for the presence of evidence for metallurgy as early as the eighth millennium.[15] Çayönü Tepese was an agrarian/hunting village. The inhabitants cultivated plants, especially wheat and barley, and also kept domesticated sheep and goats and hunted wild deer and aurochs. The lived in round houses, some with terrazzo floors made with lime plaster, some large enough to have been used for communal activities. A female figurine has been interpreted as that of a deity.

The villagers' primary occupation was obsidian-working, but they also produced simple items of native copper by cold hammering (Muhly, Stech and Maddin 1998; Kassianidou and Knapp 2005: 216). They used copper to make beads from rolled sheets of metal and to produce simple utilitarian artifacts, often items for which the semi-hardness of the annealed metal would be useful, such as awls, hooks, and wire. At Çayönü, 35 such copper artifacts have been found, more than at any other site before 4500 BC (Muhly, Stech, and Maddin 1998).[16]

Since excessive hammering made the copper brittle, just as at Aşıklı, the workers developed the process of annealing (the application of heat) to counter this effect. This was probably inspired, not by the firing of pottery – for Çayönü was still aceramic at the time – but by other applications of pyrotechnology to change the nature of substances, as discussed above. The attraction seems to have been that the objects malleable material could be used to make were impossible to fashion from stone, bone, flint, obsidian, or wood, rather than that it enhanced the status of its owner (Muhly, Stech, and Maddin 1998: 535, 541).

The people of Çayönü also collected the attractive green stone malachite, working it into beads which they drilled for stringing. It is unlikely, however, that at this time they recognized the kinship between malachite (a copper ore, which they could drill) and copper, which they were unable to drill.

In addition to the evidence that it provides for metallurgy, Çayönü, because it was rebuilt so many times, offers an insight into the way in which the typical early Neolithic round dwelling became rectangular, a form that swept most of the Neolithic world in the PPNB (with the exception of Cyprus) (see Özdoğan 1985). Çayönü lay near a small lake fed by a intermittent river, and the land was marshy and swampy. While the earliest buildings (the round buildings, or huts) were built on round subterranean foundations with brush or wattle and daub walls, the need for some means of elevating the houses above the frequent flooding was soon realized and the solution took various forms over time.

The earliest form, the grill buildings, were built on rows of stones laid out on the ground at wide intervals; the rows did not act as a support for the superstructure, but posts held up the walls and roof, creating a structure much like the earlier round huts. Houses were periodically rebuilt, often after a ceremonial "burial," and always simultaneously across the entire village. At first the plan evolved from open to closed grills, and the stone rows were broadened and the space between them narrowed. Then the gaps were filled by cap stones, and a platform was laid on these, creating a floor, which was often plastered; finally, walls were built, not of branches and twigs, but of lumps of *kerpeç* (adobe), which probably supported a flat earthen roof.

The next stage, the channeled buildings, involved a complete change in settlement pattern undertaken by all the inhabitants. Wider spaces were left between buildings, which were used as courtyards. The western sector of the settlement developed into an "industrial and residential area," with workshops constructed of perishable materials surrounding the houses. Each shop produced its special products: flint and obsidian were knapped, tools were crafted, and stone, malachite, copper, bone, leather and shell were transformed into useful objects or ornaments. A large sector in the east of the settlement, the Plaza, was left free to serve communal uses; many roasting pits suggest communal meals. The only buildings in the Plaza were the "special" buildings: the Flagstone Building, with three monumental standing stones; the Skull Building, containing a large collection of skulls, and the Terrazzo Floor Building, of unknown use.

In the next period, the cobble-paved building period, walls were erected on high stone socles directly on the ground; these also supported the floors, which were stone paved or plastered. This provided inner space under the floors for storage and for burials, which had earlier been under the houses but without a special "assigned" space. Sidewalks now surrounded the buildings. In the next, cell building, phase, a second story was added, with the living area above. This had the effect of reducing living space, which may have resulted in the changes in the final stage of PPN occupation, the Large Room Building. At that point, with the arrival of the PN, the tight restrictions on individual houses, which had previously all followed the same pattern and been built and ceremonially buried at the same time, were apparently loosened.

This complex process of architectural development, probably created by trial and error over time in order to cope with and minimize the damage from frequent flooding, resulted in the rectangular house. This innovation caught on swiftly almost everywhere in the PPNB area, except among those who opted to move to Cyprus. Their move may possibly have been a rejection of this change in the traditional round building pattern.

The First Overseas Settlement – Cyprus

Cypro-PPNB Early = 9th millennium BC
Cypro-PPNB Middle = 8th millennium BC
Cypro-PPNB Late = 7th into 6th millennium BC *(Peltenburg 2001a: Fig. 3)*

The process of human settlement up to this point had occurred slowly over millennia as groups of hunter-gatherers, starting in Africa and moving on foot as they followed food and water sources, came upon promising sites and sometimes extended their stays until they had created "settlements." When conditions were favorable, these might last for generations. But when conditions became unfavorable, people moved to more promising sites that they had come upon while foraging. Occasionally they even crossed water to offshore islands in brief forays, setting up temporary hunting camps. But in the late ninth/early eighth millennium, a new kind of movement appears in the evidence: people from the Levantine mainland – probably settlements in the area of Mureybet in the Middle Euphrates bend – crossed the sea to establish a settlement on Cyprus. It appears to have been a well-planned move for they carried with them the essential

plants and animals of a PPN way of life that was already well established on the mainland. In fact, the plant resources of the settlers match those found in the PPNA/B Mureybet settlements (Willcox 2000, 2003). It was the development of cultivation in the PPN that made possible the settlement of an island, which did not have the resources to support a full-time hunter-gatherer occupation.

This relocation across a stretch of sea 69–110 kilometers wide (Simmons 1999: 19) may appear to have been a revolutionary step, but probably it was only an extension of the perennial search for resources that hunter-gatherers had been carrying on for millennia. As we saw in Chapter 1, hunter-gathers had long before visited Cyprus and utilized the site at Akrotiri *Aetokremnos*, and evidence suggests that other sites on the island, such as Nissi Beach and Aspros, were used as temporary hunting camps. The Mureybetian communities were all located on the Euphrates, and surely used the river as well as the land in their searches for food, for exchanges of materials, or for finding marriage partners. The distribution of Mediterranean and Red Sea shells in the PPNB farming communities, which prized them for ornaments, suggests that PPNB hunters in the intervening desert zones were trading shells for cereal with the farming communities (D. Bar-Yosef 1989; Bar-Yosef Mayer 1997; Simmons 2007: 165). The time gap between the visits of hunter-gatherers and the PPNB settlements is continually being closed by new discoveries, and the memories of earlier visits could plausibly have been embodied in folklore even if there was no continuity in visitations (Knapp 2008: 22–4; Watkins 2004a; Findlayson 2004).

The newcomers established a number of settlements. They appeared (at least to the first investigators) to have brought with them everything necessary for the agricultural way of life – plants, seeds, goats, sheep, fallow deer for hunting, and at least some cattle. The cattle and deer would have been especially difficult to manage on the sea voyage, demonstrating that the seafaring abilities of the settlers were formidable – Simmons described them as arriving with "veritable Noah's arks" (Simmons 1998: 239; 2003: 69; 2007: 255).

Increasing evidence has, however, brought into question this view of the occupation of Cyprus as a simple "Noah's ark event." Peltenburg and his colleagues (2003: 99, Table 11.6; 2000) argue that the evidence points to many separate voyages, with several stages of exploration, settlement, adaptation, and development undertaken over a considerable period of time by population groups from various areas. This more complex view is supported by the existence of cultural parallels between the island and various areas of the mainland ranging from the upper Euphrates to Cilicia. In 2005 McCartney further supported the hypothesis of an incremental colonization when she argued on the basis of the chipped stone industry for an as yet undocumented stage of occupation, perhaps foragers moving seasonally between the mainland and the island, that bridged the gap between the Akrotiri phase and the Early Cypriot Aceramic, and perhaps involved an interim booster colonization (McCartney and Todd 2005: 212, 220; also suggested by Watkins 2004a).

It now seems generally agreed that the animals taken to the island in PPNB were still in their wild state, as indicated by the fact that the sheep, goats, and cattle (but not the pigs) were morphologically wild (larger than domesticated types), and that domesticates had only just begun to appear on the mainland at the time (Vigne, *et al.* 2000; Horwitz, Tchernov *et al.* 2004; Ducos 2000).[17] These animals were brought by the

settlers, probably as food supplies (as must have been the case at least with the fallow deer), possibly as pets, or for ritual use (the cats and the cattle) (Bar-Yosef 2001: 146). The cattle (which must have been brought as young animals in order to be manageable on the voyage) failed to thrive and eventually died out.

The arrivals appear to have been staggered, with at least five separate introduction events (Horwitz, Tchernov *et al.* 2004: 38). The settlers may also have found some animals already on the island, surviving descendants of wild stock brought as food supplies by earlier visitors (pig bones have been identified at the site of Akrotiri *Aetokremnos* (Reese 1999: 164–7, Table 7–7; Reese and Roler 1999: 156–61; Simmons 2001; Horwitz, Tchernov *et al.*: 37). The domesticated animals that appear later on Cyprus are considered by most to have been the result, not of domestication on the island, but of inter-breeding of the descendants of these survivors with domesticated animals brought in as replenishment stock at a later time (Vigne, *et al.* 2000; Ducos 2000; Horwitz, Tchernov *et al.*: 45).

Mylouthkia 1

The earliest of these Cypriot sites, Mylouthkia 1 (8500–7000/6500 BC) (Peltenburg, *et al.* 2001a), lacks evidence for housing but is notable for the presence of deep wells. The site itself was probably not used for settlement, but for the provision of water needed for the grinding of stone bowls: a deposit of debris from their manufacture was found in Well 33 (Peltenburg, *et al.* 2001a: 48–9). In a community lacking pottery these bowls probably played an important role in food preparation. A settlement, however, must have existed nearby. The fill in Well 133 included parts of four human bodies deposited in two episodes of secondary deposition separated by a stack of 23 complete, unbutchered caprines; one of the human skulls was wrapped and placed on the peripheries of the shaft, thus being accorded special treatment. This reflects practices documented in the Levant, notably at Kfar HaHoresh in the Lower Galilee Nazareth Hills, a unique PPNB funerary and cult center, where both wrapped skulls and animal deposits were part of elaborate burial rituals (Peltenburg *et al.* 2003: 92–3; Fig. 11.3; Goring-Morris 2000; described earlier in this chapter). The site of Mylouthkia was close to a small rocky headland that protected a cove, offering a commanding view over a possible anchorage, an ideal location for a community that felt the need to keep an eye on its boats (Peltenburg, *et al.* 2001b: 77).

Shillourokambos

The early phases of the occupation at Shillourokambos (8200–7500 BC (Guilaine and Briois 2001)) are also characterized by deep wells. The site also featured large wooden enclosures, probably for livestock (which included cattle). It provided evidence for the use of translucent chert (locally available), but also yielded hundreds of obsidian blades of central Anatolian origin (Briois, Gratuze, and Guilaine 1997; Guilaine and Briois 2001). Well 23 contained the remains of 30 humans, together with parts of animals (Stordeur 2003: 369). An early joint burial of a man and a cat at Shillourokambos suggests a strong association between two individuals, and probably attests that both man and animal had a special social or cult status (Vigne *et al.*

2004). This is also suggested by the discovery of a figurine of a feline head which has parallels with cat figurines found at the Mureybetien sites of Dja'de and Jerf el-Ahmar (Guilaine 2001; Stordeur 2003); and at the sites of Nevali Çori and Göbekli (Stordeur 2003: 366–6, Fig. 7).

Kalavasos Tenta

At Kalavasos Tenta (8200–7700 BC), best known for its later Khirokitian levels, the earliest level of occupation, Period 5, or Timber Period, which was marked by stake holes and pits rather than by solid architecture (Todd 2001; 2003; 2005; McCartney and Todd 2005: 212; Peltenburg, *et al.* 2001b), is seen as chronologically related to the earlier phases of the PPNB settlement of Shillourokambos. Subsequent levels show the transition from timber to substantial stone construction. In Period 2, dated early in Cypro-LPPNB (seventh millennium BC) with possible extension into the succeeding Khirokitian, on the top of the small hill that constitutes the site ("top of site") a remarkable large circular structure was constructed, 2 meters in diameter, with concentric inner walls containing radial cells; it was surrounded by smaller single-room round buildings, some containing pillars" (Peltenburg 2001a: 41 and fig 4; 2004b; Stordeur 2003). The large central building is very similar to a concentric multi-cellular building surrounded by smaller single-room curvilinear buildings at the upper Euphrates valley PPNA site of Jerf el-Ahmar, adding to evidence of possible links between the two areas.

Ais Yiorkis

At Ais Yiorkis (Middle to Late Cypro-PPNB), a small, Middle to Late Cypro-PPNB upland site near Paphos,[18] bones provided evidence for the presence of cattle in the Cypriot-PPNB period (Simmons 1998; 2003), adding to the evidence for these animals at Shillourokambos. Simmons suggests that Ais Yiorkis may have been a specialized "ranching" site, providing for cattle that were too large and problematic in villages (cattle subsequently disappeared from Cyprus during the Khirokitian period, reappearing only in the Philia *facies* that bridged the Chalcolithic and Early Cypriot periods). Although evidence for only small numbers of cattle was found, these finds are nonetheless seen as important in that they establish that settlement extended beyond coastal areas into the uplands and suggest that more than one type of settlement existed.

Akanthou-Arkosyko

Still another Cypro-PPNB site, Akanthou-Arkosyko (ninth millennium, Early to Middle PPNB) on the northern coast of Cyprus, has yielded very large quantities of obsidian, including over a thousand worked blades, from an Anatolian source in Cappadocia, suggesting that the settlement served as a center for the importation of obsidian (Şevketoğlu 2000; 2002). Tokens and small "thimble" bowls of Cypriot picrolite, the easily carved greenstone from the Troodos mountain area, found at the site (Peltenburg *et al.* 2001a; Şevketoğlu, M. 2006; Briois, Gratuze, and Guilaine

1997: 111) could indicate that an exchange system was in place in which picrolite was given in exchange for imported obsidian.

The Origin of the Settlers

The presence of Anatolian obsidian in such large amounts at Akanthou bears on the question of the origin of the settlers. As was the case with Mesolithic Akrotiri-*Aetokremnos*, in the Cypriot Neolithic sites there are cultural parallels with both Anatolia and the Levant, and the question of the origin of the settlers is inconclusive. The chipped stone techniques and assemblages point predominantly to the Levant, but also attest to the influence of Anatolia.[19] But similarities with the Levant exist in burial practices – the separation and wrapping of a skull at Mylouthkia, and the accompaniment of human remains by unbutchered animals at Mylouthkia and Shillourokambos (although these occur in the apparent fill of wells, possibly in a ritual context, not in unequivocal burials). Architectural similarities have also been invoked: the use of round buildings and their arrangement in the summit of Kavalasos Tenta "top of site" can be compared with the layout of the upper Euphrates Valley PPNA site of Jerf el-Ahmar (Peltenburg *et al.* 2001a: 41–2, Fig. 4; Stordeur 2000; Stordeur *et al.* 2001). It is perhaps significant that round buildings were going out of use on the mainland at the time of the settlements – the progression can be seen at Jerf el-Ahmar (Cauvin 1980; Stordeur 2000). The shift to rectangular houses could indicate the influence of northern practices of building rectangular houses on a grill-like foundation of parallel walls, as at Çayönü (Coqueugniot 1999; Mellink 1989).[20] Round houses, however, remained the preferred housing type in Cyprus throughout the Neolithic period.

The spectrum of animals, especially the presence of Persian deer (*Dama dama mesopotamica*)[21] – is often invoked as evidence of the settlers' origins in northern Syria in the upper Euphrates Valley (Davis 1985: 161; Willcox 2003: 236). Recently, cattle have been added to the list of connections with the Euphrates Valley with the discovery of evidence for the presence of cattle at the sites of Abu Hureyra (Moore *et al.* 2000: 429)[22] and Halula on the middle Euphrates (Coqueugniot 1999a; Mellink 1989), at a date roughly coinciding with the settlements on Cyprus, around 7700 BC (Molist 1999; Cauvin 2000: 218).

Another possible clue to the origins of the settlers has been seen in the archaeobotanical finds from the sites of Shillourokambos and Mylouthkia, which, according to Willcox (2000, 2003), included the "Founder Crops" found only in the western bend of the Middle Euphrates (Guilaine *et al.* 2000; Lev-Yadun, Gopher, and Abbo 2000).

Stordeur, calling the question of the origin of the settlers, "Trop tôt pour conclure," suggested that the mixture of influences that makes the exact pinpointing of a specific origin difficult may be explained by the settlers' participation in the *aire culturelle* mentioned in Chapter 1 that connected Anatolia and the middle valley of the Euphrates to the Levantine Corridor and to Jericho in the south. People traveled through this conduit, also called the Levantine Cultural Interaction Sphere or *oikoumene*, from the ninth millennium, taking with them material objects, especially obsidian, and also ideas.[23]

Locating the origin of the settlers, even in a broad sense, raises still another question: how did the settlers cross the land "gap" between this sphere and the coast, and then obtain the necessary boats for the trip?

A "Neolithic Anomaly of Cyprus"?

Sea travel in the case of the Mesolithic visitors to Akrotiri *Aetokremnos* and the occupants of the camps at Nissi Beach and Aspros could have been accomplished by a few small rafts, for which no formal embarkation facilities would have been needed; nor would the small groups of hunter-gatherers have left many traces upon the land before their departure.

In contrast, one might think that a number of boats of considerable capacity would have been required in order to accommodate a PPNB community with its full complement of animals and plants, and that the embarkation facilities would have been such as to leave some evidence of, while certainly not a formal launching facility, at least a campsite for the temporary assembly of a relatively large group of migrants and their animals and supplies. Doubt about this apparent lack of facilities has led to the situation being called the "Neolithic Anomaly of Cyprus" (Galili, *et al.* 2004: 96–7).

In fact, however, the trip might have been accomplished by the staggered arrivals of a number of small groups, as is currently postulated. As for evidence of an embarkation site – even large temporary campsites usually leave few if any traces behind. While there is no currently no evidence along either the Cilician or the north Syrian coast for earlier settlements, such as fishing villages, that could have provided boats or material for boat building, supplies, and navigational information, temporary camping sites, or a point of embarkation (Peltenburg 2000, 2001a), such sites could well have been submerged by the rising sea level (Bar-Yosef 2001: 133; Peltenburg *et al.* 2000: 851–2; 2003: 96–9; Davis 2003; Moore 1973). During the Holocene, sea levels rose on the eastern coast of the Mediterranean from the gulf of Alexandretta to the northern Sinai, submerging a strip of the coast of approximately 2 to 40 kilometers in width (Bar-Yosef 2001: 133; Galli and Nir 1993: 269). Perhaps such sites were themselves involved in the settlement. A village in danger of being swallowed up by the sea would have had motivation to move, and time to make an orderly resettlement – perhaps even to the nearby island of Cyprus. There is evidence that the site of Byblos and other Levantine coastal sites were occupied at least briefly in the earliest Neolithic or Mesolithic (Moore 1978: 330), and later rising sea levels site may have motivated the relocation of Ras Shamra to its current situation, 1 kilometer inland from today's coastline (de Contenson 1992; Peltenburg *et al.* 2001a: 59), dated by obsidian from Anatolia found in the earliest level (VC) to the mid-seventh millennium BC (Moore 1978: 273; Cauvin 1991: 173, 176).

An example of a submerged site, although of a later date, was found at Atlit-Yam, a PPN fishing-village site off the Israeli coast that was occupied at end of the seventh and the beginning of the sixth millennium before being swallowed by the sea (Galili, Kaufman, and Weinstein-Evron 1988; Galili and Nir 1993; Galili *et al.* 2002; 2004). The site provides evidence for rectangular structures, paved floors, storage pits, hearths, and megalithic installations identified as ritual places (a circle of seven standing stones,

and one of three oval stones, one inscribed with grooves forming schematic anthropomorphic figures). Skeletal evidence for auditory exostosis shows that the inhabitants engaged in cold-water diving; there is also evidence for the practice of rowing and the use of fish nets in pursuit of gray trigger fish. This fish inhabits depths of 25–80 meters and boats would have been necessary in its capture. Perhaps the most significant feature of Atlit-Yam, however, at least in terms of parallels with Cypriot sites, is the discovery of 20 round structures identified as water wells, similar to wells found in Cyprus at Shillourokambos and Mylouthkia, suggesting the long-term persistence among Cypriot settlers of a traditional subsistence strategy essential to life in Levantine coastal sites. Moreover, there is increasing evidence for the presence of other submerged coastal settlement sites along the Levantine coast (Galili *et al.* 2002: 189).

The presence of water wells at both Atlit-Yam and Kissonerga-Mylouthkia and (probably) at Shillourokambos, reflecting a traditional subsistence strategy of well-digging, makes the suggestion of Sherratt (2007) that the settlers on Cyprus originated in the Carmel region of the coast seem very plausible. Similarly, Peltenburg suggested that the Neolithic culture was carried to Cyprus from "as yet undetected west Syria populations" (Peltenburg *et al.* 2001a: 39).

Further evidence of cultural connections between Cyprus and the southern Levantine coast comes from enigmatic incised pebbles that are marks of the Yarmukian culture of the central Jordan Valley (Stewart and Rupp 2004; Eirikh-Rose 2004). The pebbles, 8–10 centimeters in length, are incised with a variety of linear, hatched, cross or starburst designs. Pebble figurines 8–15 centimeters in length have also been found, engraved with schematic eyes, and in some cases noses, mouths, and clothing. Although a few engraved pebbles are known from the Palaeolithic and the Natufian periods (Eirikh-Rose 2004), the number increased markedly in the PPNA and PPNB periods, and by the Yarmukian period the engravings became almost canonical. The large Yarmukian site of Sha'ar Hagolan, where 30 pebbles and about 105 figurines were found (Garfinkel 1999a), is considered to be the center of Yarmukian culture and was a participant in an extensive interregional exchange network (Garfinkel 1999c). Other pebble finds in the Levant included 11 incised pebbles, and 14 figurines found at the contemporary site of Munhata (Gopher and Orrelle 1995; Balter 2000), and about a dozen figurines at Byblos (Garfinkel 2004, Fig. 14.7: 2–5).

On Cyprus, incised pebbles and pebble figurines similar to those found in the Levant appear even earlier than on the mainland, with three incised pebbles, a pebble figurine, and a possible model of a boat found at PPNB Shillourokambos (Guilaine *et al.* 2000: 589–94). Numerous examples come from Khirokitia and Ortos in the later Khirokitian period: 51 incised pebbles and one figurine, with full face representation, found at Ortos (Fox 1988; Simmons 1996; Simmons and Corona 1993); and 53 pebbles found at Khirokitia (Dikaios 1953: 120–4; Cluzan 1984; Astruc 1994: 236–43).

There have been many suggestions about the possible significance and use of these pebbles (Eirikh-Rose 2004; Stewart and Rupp 2004). They may have had simple domestic uses, such as toys in the case of the figurines, or laundry scrubbers, bread stamps, or textile stamps, in the case of the incised pebbles. The almost canonical character of the figurines, and the consistency of the linear markings over a considerable geographical span suggest, however, that they had a wider cultural significance. A number of suggestions have been offered: the figurines may have been ritual objects,

perhaps used in coming-of-age ceremonies, or training devices in the inculcation of gender roles (dolls), while the incised pebbles could have served as identity markers, or proto-seals (Eirikh-Rose 2004), or as counting devices in trade transactions (Stewart and Rupp 2004: 168–71; Garfinkel 1999c). Gopher and Orrelle even suggest that the incised pebbles may have been indicators of the age and reproductive status of the various women in the settlement, providing a means of controlling the reproductive resources of the group (Gopher and Orrelle 1996, contra Garfinkel 1999b). Whatever their use, however, the similarities between those found in Cyprus and in the Levant indicate contacts over a considerable period of time, with the type possibly even originating in Cyprus. The possible model of a boat found at PPNB Shillourokambos would fit such a scenario, and provides a fitting reminder of the maritime origin of the settlements on Cyprus.

The possibility that the settlers may have traveled to Cyprus from the northern Levantine coast, which was closest to their Mureybetian homes, crossing the apparent gap between the Middle Euphrates and the coast, is not, however, excluded. Arimura's conclusion (2002: 107) seems inescapable: "les résultats des recherches récentes à Chypre, où des sites contemporains du PPNB ancien ont été trouvés, rendraient l'absence de sites du début du Néolithique sur le littoral incomprehensible." Peltenburg suggested that small bands living in the coastal area as pastoral-nomads could have assisted the settlers (Peltenburg *et al.* 2000). The activity of pastoral nomads in the area is suggested by the presence of Mediterranean marine shells in the Levantine Corridor (Bar-Yosef 1998: 169, 172) and Anatolian obsidian diverted from the north–south transit along the Corridor and found in Cyprus (Peltenburg *et al.* 2001a: 57; Cauvin 2000, Ch. 17). Such nomads could have provided shelter and subsistence to the settlers (or even been the settlers themselves, if we take into consideration Watkins's (2004a) hypothesis that the settlements were made by hunter-gatherers).

There is, moreover, recent evidence for occupation in the intervening area between the Euphrates and the coast at that time. Evidence for settlement exists at Tell Qaramel, situated about 25 kilometers north of Aleppo and 35 kilometers south of the Taurus Mountains, which is a PPNA Mureybetian-type site of the mid-ninth through mid-eighth millennium, a time reasonably close to that at which the Cypriot PPNB settlers were in passage. Tell Qaramel occupies an area reasonably close to the route that they must have followed as they moved toward the sea had they originated in the Mureybet area. (Copeland 1981: 87–92; Mazurowski 1999; 2002; 2003; 2004; 2005). There the remains of some 35 circular, oval, and rectangular buildings have been found, including a large community building (a "temple"?) surrounded by 14 human burials, with a wall niche with stele, and three graves under the floor, one without a head; and a building internally divided by two walls curving out from a limestone slab set in the center which has four auroch skulls arranged below the floor in a way that appears to outline the curved walls (Mazurowski 2005: 501). Remains of cattle, sheep/goats, horses, donkeys, dogs, cats, gazelle, and wild pigs were found. Its excavator called the site by one of the most important Early Neolithic sites in the northern Levant (Mazurowski 1999, 2002: 330).

Evidence for Early PPNB occupation in the area between the Middle Euphrates Valley and the coast has also recently been found at Tell el-Kerkh, a site in the Rouj Basin

about 70 kilometers southwest of Aleppo, Few solid structures were encountered, probably owing to the limited extent of the excavated area, but the remains included several firing installations, one hearth with limestone cobbles and carbonized remains, plant remains (single-grained einkorn, two-grained einkorn/emmer, and barley), evidence for domestication (red, fallow and roe deer, pigs, sheep, goats, cattle, gazelles, cats, dogs, and smaller wild species), and flint and obsidian artifacts, probably from Cappadocian sources, with some evidence for on-site production of obsidian blades (Arimura 2002; Tsuneki *et al.* 2004).

Motivation for Overseas Settlement?

Why would a group of people have decided to move themselves to an offshore island? The pressures of increased population brought on by the introduction of farming has been suggested – land near settlements may have been exhausted by overworking, and the most favorable environmental niches had probably long been occupied. But arguments from overpopulation are fostered more by modern assumptions than by Neolithic realities, for the landscape was still thinly populated. Moreover, a move overseas was a much more radical step than seeking out another mainland location.

In looking for motivation, one striking element that stands out is the shift on the mainland from the use of traditional round houses to rectangular houses. Developed at Çayönü, apparently in order to cope with ground water and flooding, the rectangular house seems to have been rapidly and generally accepted – except in Cyprus – perhaps because it allowed for easier expansion and better use of space, both within the dwelling and within the neighborhood. Nevertheless, in the light of the power of housing to shape peoples' concepts of the wider world (Watkins 2005; Hodder 1998) and the apparent cultic aspects of the round house – the presence of skulls, radial floor plans, and free-standing, non-functional pillars in the houses (Peltenburg 2004b) – the change could have been profoundly disturbing to some people. Thus it is significant that the shift to rectangular houses on the mainland was not carried over to Cyprus, where the use of round houses persisted until the seventh–sixth millennia. It is clear that there was interaction between the island and the mainland, and the people on Cyprus would have been well aware of the newer, and more practical, rectangular form of housing on the mainland. Thus their persistence in the use of round houses seems likely to have been not only an expression of ethnic identity but also to be closely tied to cultic and religious practices.

Another architectural change that may have caused concern was the construction of new monumental public buildings – the extreme being the famous Tower of Jericho. These would have altered the conceptual environment of the town itself, providing new landmarks and affecting traditional patterns of movement (Watkins 2004b). Their construction also would have required increased community organization, including enforced labor participation, which might have been resented by some. Cyprus was known from occasional sightings in good weather and the reports of earlier visitors – hunter-gatherers and curious explorers. Even if these sources were hazy and possibly intermingled with miraculous elements – or perhaps because they were – they could have offered an attractive option to the dissatisfied.

The Early PPNB maritime settlement of Cyprus was only the first of a number of such seaborne migrations that spread the Neolithic way of life. But overseas migration did not really catch on until the later PPNB and PN (8600–6300 BC), when bearers of the Neolithic life-style moved into an energetic "colonizing" mode, establishing numerous overseas settlements, often using maritime routes and traveling far beyond sites even dimly visible from their mainland homes.

Notes

1 For the history of the terminology, see Ammerman and Cavalli-Sforza (1984: 34–5).
2 Sherratt (2007) suggests the term "forager climax" for the subsistence shift.
3 On the Neolithic, see Simmons (2007).
4 With the exception of the dog, whose domestication is dated to ca. 10,000 BC (Ammerman and Cavalli-Sforza 1984: 23).
5 de Cupere and Duru (2003) See http://www.asiklihoyuk.org/AHeng.html (accessed February 16, 2011).
6 See the papers in Cohen and Armelagos (1984) and Cohen (1980); see also Simmons (2007: ch. 2) for a summary of the many explanations and speculations about the adoption of agriculture.
7 On the risks of childbirth in classical Greece, see Demand (1994: Ch. Four).
8 http://www.archatlas.org/OriginsFarming/Farming.php (accessed February 16, 2011).
9 On excavating in a conflict zone, see http://query.nytimes.com/gst/fullpage.html?res=9A07EEDC1131F935A3575BC0A962958260&sec=&spon=&pagewanted=1 (accessed February 16, 2011).
10 Last part of the eleventh millennium BP (uncal.) (Rosenberg and Redding 2000: 40).
11 Dates are as calculated by the CANeW (Gérard and Thissen 2002).
12 See http://www.diplomatie.gouv.fr/fr/actions-france_830/archeologie_1058/les-carnets-archeologie_5064/orient-ancien_5067/syrie-jerf-el-ahmar_5482/index.html (accessed February 16, 2011).
13 http://grupsderecerca.uab.cat/sappo/content/tell-halula (accessed June 29, 2011).
14 http://www.archaeology.org/0811/abstracts/turkey.html (accessed June 29, 2011); http://ancient-anatolia.blogspot.com/2006/09/early-neolithic-site-in-southeastern.html (accessed August 23, 2008).
15 Excavated between 1964 and 1991 by expedition teams under the leadership of Cambel, Braidwood, Mehmet Ozdogan, and Wulf Schirmen; Braidwood and Braidwood (1982); Özdoğan (1985). See http://oi.uchicago.edu/research/pubs/ar/92-93/prehistoric.html (accessed February 16, 2011). Oriental Institute 1992 Annual Report, and other annual reports on this site. See http://www.mnsu.edu/emuseum/archaeology/sites/middle_east/cayonu.html (accessed February 16, 2011).
16 Larger figures have been given, but, according to this article (conference paper given in 1989, but published in 1998), some of these artifacts have turned out to be malachite. On the other hand, subsequently ever larger numbers have been reported – Hauptmann (1991: 397) noted more than 100; Stech (1998: 729), more than 100; Yener (2000: 20), over 200 – thus it is difficult to judge what the exact numbers may be.
17 The use of the terms "domesticated" and "wild" varies. In some cases the term "domesticated" is used for animals that were being "kept" or managed, while in others it is used only and specifically to indicate morphological changes. Horwitz, Tchernov *et al.*

(2004) see a clear distinction: the animals taken to Cyprus "were wild rather than culturally managed or domesticated," and, for many species, the trip to Cyprus pre-dated their domestication on the mainland" (2004: Abstract). But see the discussion in Simmons (2007: 105), which essentially wipes out the distinction on the grounds that the domestication process takes place over a span of time: "several species may well have been 'anthropologically' domesticated even if morphological changes had not yet occurred."

18 Date from web site of Lemba Field School, 2008: http://www.shc.ed.ac.uk/archaeology/events/fieldwork/2008/lemba_neolithic (accessed June 29, 2011).

19 At Shillourokambos, Briois (2003); at Mylouthkia and Tenta, McCartney (2003); McCartney and Todd (2005).

20 http://www.mnsu.edu/emuseum/archaeology/sites/middle_east/cayonu.html (accessed February 17, 2011).

21 http://en.wikipedia.org/wiki/Persian_fallow_deer (accessed February 17, 2011).

22 On the excavations at Abu Hureyra, with full bibliography, see; http://www.infosources.org/what_is/Tell_Abu_Hureyra.html (accessed May 23, 2011).

23 On the Levantine Cultural Interaction Sphere, see Gopher (1989: 91); Bar-Yosef and Belfer Cohen (1989); and the discussion in *Neo-Lithics* (including Nesbitt 2004; Peltenburg, 2004c; Rollefson, and Gebel 2004).

Chapter 3
The Neolithic Diaspora

The Troubled Transition to the Pottery Neolithic

In the late seventh millennium the PPN period in the eastern Mediterranean came to an end with a widespread pattern of dislocation. Sites were abandoned, some people resorted to pastoralism and others to migration, often toward coastal areas. Disputes rage about how this phenomenon should be framed and named – Perrot (1972: 403–15) called it a "hiatus palestinien," and J. Cauvin (2000: 144a) "Great Exodus" and a period of "house-moving fever." These labels have raised emotions: Hodder saw the term "Great Exodus" as having a "messianic tone," and Simmons agreed, increasing the hyperbole by objecting that it is "unrealistic to invoke massive expansions of the 'true PPNBers' marching forth with their splendid weaponry to colonize new regions in a 'great exodus' as Cauvin's model seems to" (2007: 166, see also 40, 165, 184–94, 201). But focusing solely on the Near East, as Simmons does, masks the truly remarkable significance of the events that these terms were meant to evoke – the spread of people with a Neolithic lifestyle and culture far beyond the Near East – to Crete, to Anatolia, to Greece, to Italy – in ventures mostly carried out by sea, hugging coasts and island hopping. Thus I would add to the hyperbole and "messianic tone" of the debate by using the label "Neolithic Diaspora."

Even the most minimal interpretation admits that dramatic changes occurred in settlement patterns at the end of the PPNB. Various explanations for the crisis have been suggested. Two strong candidates are over-exploitation and poor management of the land, forcing the exploitation of ever more distant fields (Kuijt 2000a), and stress brought on by population increase and the crowding and increased regulation of daily life that resulted (Kuijt 2000b), However, a climate change around 6400–6200 BC, reflected in the ice cores and in pollen cores in Greece, Anatolia, and the Levant, may well have been the last straw, causing severe environmental problems and rapid climate change (Goring-Morris and Belfer-Cohen 1998, esp. p. 87; Bar-Yosef 2001: 150).[1] As conditions were no longer favorable to traditional crops, diets had to change;

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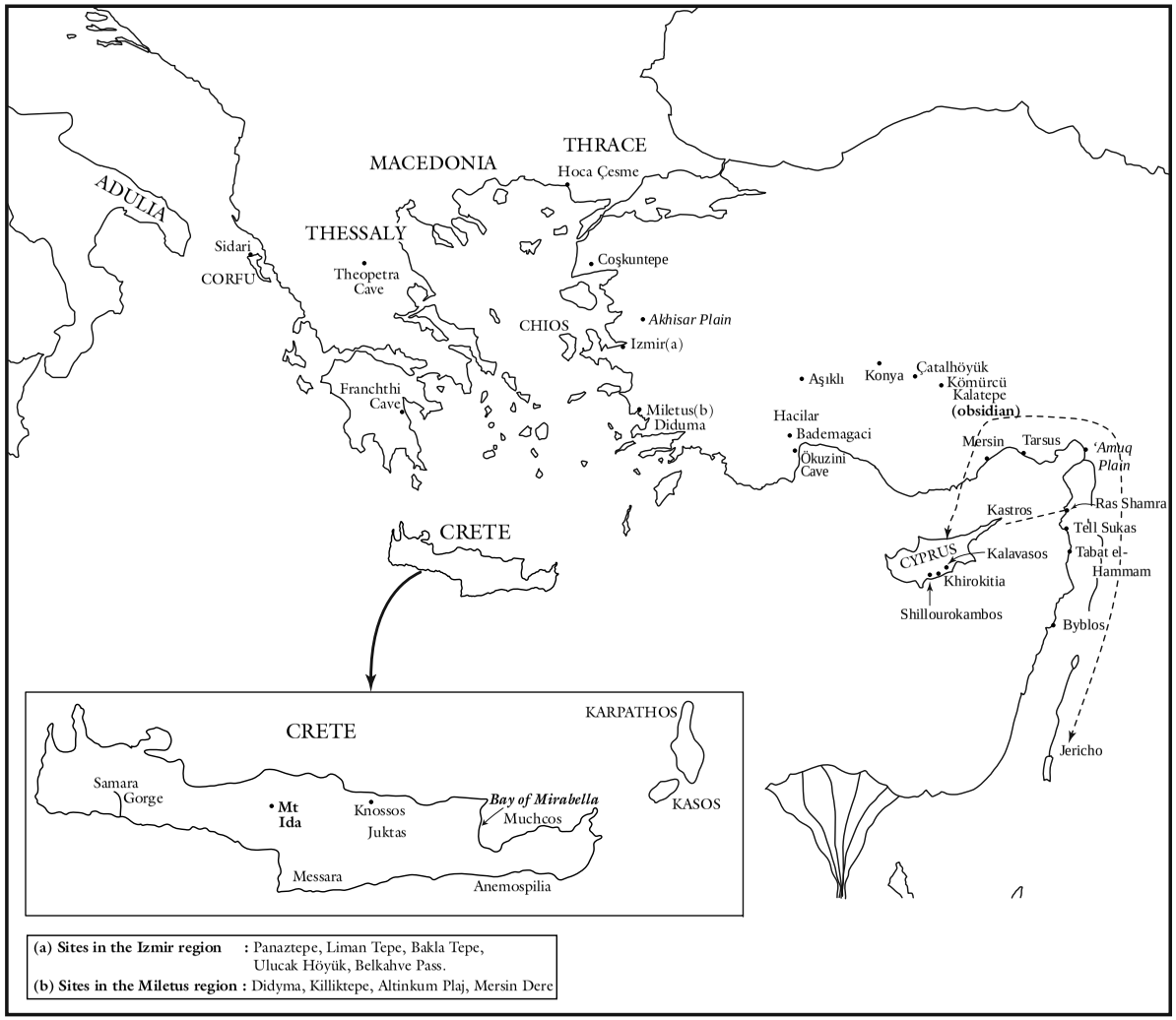
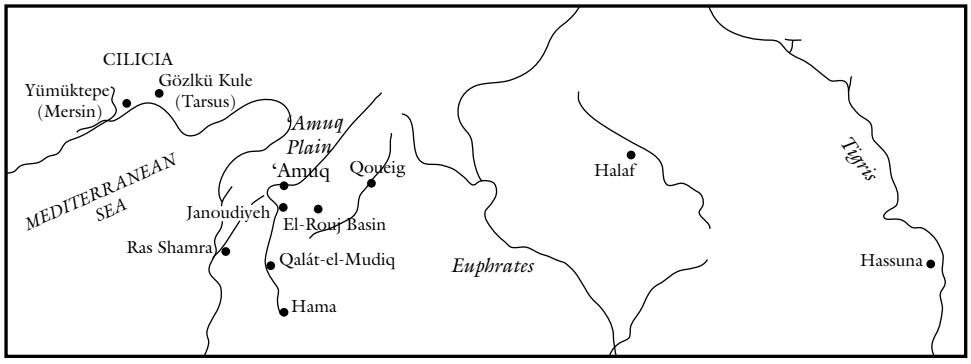


Map 3.1 The Neolithic Diaspora in the East.

settlements that had grown into complex societies based on established patterns of production and consumption found food growing short and hardly sufficient to provide surpluses to support their elites. Villages fragmented into smaller settlements, and many probably adopted the traditional subsistence strategy of pastoral nomadism. In most places, the collapse left a gap in archaeological evidence of some 500–1,000 years before the marked expansion of the Neolithic lifestyle across the Mediterranean (Bar-Yosef 2001: 150).

Concurrent with – but not causally connected to – this period of "house-moving fever" came the widespread use of pottery. Until this time, while people had used clay to make figurines, they had not employed it for pottery. Stone and wood vessels, and animal skins, served the purpose. Many also used vessels made of lime plaster, which was widely used for wall and floor coatings, and to coat skulls in burial rituals.[2] Vessels made of lime plaster, called White Ware ("vaisselles blanche"), had sterilizing properties, but were not heat resistant and could not be used over a fire (Balossi Restelli 2006: ch.10). The use of true pottery is currently first attested in the form of coarsely made plant-tempered ware at Tell Sabi Abyad in the Balikh Valley, ca. 6800–6200 BC (Akkermans *et al.* 2006, Figs 17 and 18). A more practical form was soon developed, called Dark-Faced Burnished Ware (DFBW), which was characterized by mineral tempering, dark coloring, and burnishing. It was first identified by the Braidwoods in Cilicia and northern Syria (Braidwood and Braidwood 1960: 502). More recently, Ballosi Restelli (2006) has identified regional variations occurring in the coastal sites of Sukas, Tabbat al-Hammam, and Byblos, and imports that reached inland to sites in the Beqa'a, and finally the eastern Euphrates and Balikh areas, spreading even into localities in which straw-tempered pottery was used. In addition to imports, imitations – local forms of DFBW – were also made, attesting to the transmission of technology. From the eighth to the sixth millennium BC finds of DFBW offer evidence for a widespread network of connections that stretched from the coast as far inland as Bouqas (Le Mière and Picon 1987). Ballosi Restelli attributes its widespread adoption to the practical need for vessels that could be used for cooking over a fire rather than to a desire to express identity or ethnicity.



Map 3.2 Distribution of Dark-Faced Burnished Ware (DFBW).

Cilicia

In the Epipalaeolithic, and perhaps even before, Cilicia had acted as a conduit through which obsidian moved to the coast and beyond, but it was only with the spread of the Neolithic in the late seventh century that settlements appeared along this coast. These included the well-known sites of Mersin/Yümüktepe (Garstang 1953; Moore 1978: 315–19; Caneva 1999), and Tarsus/Gözlü Kule (Goldman 1956), as well as a number of other small sites still being investigated (Caneva 1999: 113). As the Ceramic Neolithic began, Cilicia formed part of the DFBW regional network encompassing the Amuq and northern Syria and roughly following the obsidian routes.

Mersin/Yümüktepe, which now lies in the suburbs of the city of Mersin, began as a simple farming village, but it also had connections to a wider world, serving as a way-station on the obsidian route (Garstang 1953; Moore 1978: 315–19; Caneva 1999). It was occupied almost uninterruptedly from 7000 BC until the thirteenth century BC. In the beginning of the settlement (Early Neolithic), the inhabitants were farmers; they kept domestic animals – sheep, goats, cattle, and pigs – cultivated a variety of cereals, legumes, and flax, and collected the olives, figs, and pistachios, which grew wild in the vicinity. They were unusual in no longer practicing hunting, but they did pursue fishing. The earliest housing remains on the site date only to the Middle Neolithic, when a multi-roomed wattle and daub building on stone socles was constructed. It was clearly an important building, indicated by the fact that its entrance was marked by a massive gate consisting of two huge conglomerate blocks that had been transported some distance. The building was used over a long period of time, and the finds suggest domestic food processing activity. After a clear but short break in habitation, the Late Neolithic phase was marked by a new building layout, the use of mud bricks, new forms of pottery, and the appearance of stone and ceramic button seals with geometric incisions. The excavators suggest that this part of the settlement was used at the time as a collective storage and redistribution area, and that the seals were record-keeping devices. The tools were mainly obsidian from central Anatolian sources (Göllü Dağ and Nenezi Dağ) and were imported as semi-worked products, probably by itinerant knappers with whom cultural contact was likely minimal.

Tarsus

Another Cilician site in the vicinity of Mersin was Tarsus/Gözlü Kule (Goldman 1956). Although well known in later periods, its earliest phases have mostly eluded archaeological investigation because of the presence of ground water. The earliest excavated level at Tarsus was limited to about 1.252 meters square, too small to reveal architectural structures. Nevertheless, the plentiful material finds – finely faced polished wall plaster, stone, rubble, and the probable remains of a wall – make it reasonable to assume that it had houses with foundations of stone laid without mortar, and plastered walls, similar to those in Mersin. Abundant remains of DFBW pottery show that the village belonged to that interaction sphere whose beginnings probably went back to the obsidian routes that led from Cappadocia to the Levantine Corridor and onwards at least as far south as Jericho (Cann and Renfrew 1964; Renfrew, Cann, and Dixon 1965:

239; Renfrew, Dixon, and Cann 1966: 39; Renfrew and Dixon 1976; Gopher, Barkai, and Marder 1998).

The Amuq Plain (Plain of Antioch)

Occupation in the Amuq is documented from the Early Neolithic, when obsidian traveled southward by land routes.[3] The Amuq formed the "hinge" of a series of connections called the Levantine Interaction Sphere (Forest 1996: 145; Schwartz 2001: 257; Stordeur 2003). It had access to the Mediterranean by way of the Orontes River, which flows from the south and makes a sharp bend to the sea in the valley. The Orontes delta, which provided the most obvious place for an embarkation site for tenth-millennium hunters headed for Cyprus, in later times offered the only safe and sheltered anchorage along the north Syrian coast for small boats that would not have required true "port" facilities.[4] There is evidence that the delta was occupied from the Paleolithic period through the early Chalcolithic, and the find of an obsidian bladlet at a Neolithic/Early Chalcolithic site (OS 47) demonstrates the early connection between Anatolian obsidian sources and the Orontes area (Yener *et al.* 2005: 70) and the possibility of further connections to the south by sea.

The Levantine Coast

It was during the seventh-millennium "house-moving fever" that the first settlements appeared along the Levantine coast – Byblos (Garfinkel 2004; Dunand 1949–50: 53–74; 1950: 583–603; 1955: 7–23), Ras Shamra,[5] Tabbat al-Hammam (Braidwood and Braidwood 1940: 196–203, 222–6; 1960: 503), and Tell Sukas (Riis and Thrane 1974). At the time of their settlement, Ras Shamra, Sukas, Tabbat al-Hammam, and Byblos were surrounded by hills and dense forests, which essentially cut off their contacts with each other except by sea. As a result, Riis and Thrane (1974: 87–8) proposed that they were established by sea and that their continued development would have depended on maintaining seaborne contacts. The finds of Cappadocian obsidian on the north Levantine coast in the Final PPNB, support this, suggesting a new, coastal route for its transmission (Renfrew, Dixon, and Cann 1966: 53).

In the second half of the sixth millennium, the Levantine Interaction Sphere reached from central Anatolia as far south as the Sinai, as is demonstrated by finds at Byblos of incised pebbles of the Yarmukian culture of the central Jordan Valley (See Chapter 2; Garfinkel 2004: 182; Balossi 2006: 218; Stewart and Rupp 2004; Eirikh-Rose 2004). It also reached Cyprus, where the earliest incised pebble has been found (See Chapter 2).

Khirokitian Cyprus

Despite gaps in the evidence for occupation, it is widely believed that contacts by sea between Cyprus and the mainland continued without a serious break from the PPNB settlement period into the seventh and sixth millennia – the late aceramic Neolithic period, also known as the Khirokitian.[6]

Nine Khirokitian sites have been identified, only three of which have undergone extensive excavation: Khirokitia *Vouni* (Dikaios 1953; Le Brun 1984, 1989), Kalavasos *Tenta* (Todd 1987, 2001), and Cape Andreas *Kastros* (Le Brun 1981). The hillside site of Khirokitia, located some 30 kilometers from Larnake, is the primary site. As maintained by the archaeological service, it vividly recreates the Khirokitian lifestyle for the visitor.[7]

The people of Khirokitia were farmers and herders as well as hunters. They lived in a densely occupied settlement of round houses, some as large as 9.2 meters in external diameter, although the thickness of the walls reduced the internal dimensions by about half (Le Brun 1986, 1989; 1997; 2001). The interior of the houses had platforms, hearths, pits cut in the floor, and, in some cases, internal dividers. Many of the houses also had apparently non-functional piers or pillars, some with carved figures of humans and animals, and traces of paint; perhaps, as Peltenburg suggested, they had only symbolic/ritual significance, a recollection of the pairs of pillars used in Syro-Anatolian architecture (Peltenburg *et al.* 2001a: 42). A number of these houses arranged around an inner "courtyard" seem to have served each family group. The village was defended on all sides either by natural means or by a wall into which houses were incorporated; at one point, the wall was moved outward to allow for expansion of the settlement.

On the mainland, circular houses had largely gone out of favor by this time, having been replaced by rectilinear houses, and the retention of circular housing has been one of the many puzzling indicators of Cypriot life that are read as conservatism or isolation. Another such factor was the failure of the Cypriots to make use of pottery – a staple of life in most areas at this time. Obsidian use also declined, and the chipped stone industry was technically impoverished. Yet there is evidence supporting continuing contacts with the mainland: the presence of small amounts of obsidian and some imported carnelian, the persistence of the PPNB subsistence pattern, and the use of similar incised pebbles on the island and mainland attest that outside contact was not entirely broken. Moreover, evidence of continuing but tenuous contacts between the island and the mainland comes from the humblest of "residents": *Mus m. domesticus*, the common gray house mouse (Vigne and Cucchi 2005). Such tiny – and troublesome – creatures were not native to Cyprus, where the Cypriot mouse (*Mus cypriacus*) was indigenous. Nor, considering their destructive grain-eating appetites, would they have been imported purposely, either for food or as amusing pets. They came on their own as uninvited, and unnoticed, fellow travelers, stowaways in shipments of grain. And they continued to come – had they not, their brief life spans would have meant extinction or swift mutation to either giantism or dwarfism, conditions that affect isolated island species because of their restricted gene pool (Bromham and Cardillo 2007; Peltenburg *et al.* 2001a: 57; Davis 1984). And, thus, people must have continued to come, augmenting existing populations if not creating completely new settlements or "cultures," despite the lack of evidence for more exotic imports to the island.

The Spread of the Neolithic into Anatolia

Given the location of obsidian sources in Anatolia, and their transport and widespread distribution southwards along the Levantine Corridor (Cauvin and

Chataigne 1998), one might expect that the practice of cultivation would have spread northward from the Middle Euphrates and been adopted at the Anatolian sources of obsidian. In fact, Sherratt suggested in 2005 that entrepreneurs from the middle Euphrates area seeking obsidian may have brought the knowledge of farming to Anatolian with them.

But the recent discovery of a large, quasi-industrial PPNB obsidian workshop at Kömürcü-Kaletepe, 10 kilometers north of Ciftlik, casts considerable doubt on this possibility.[8] This workshop produced obsidian for Levantine customers, as is shown by the discovery of obsidian worked using its distinctive tool kits and methods in the north Syrian PPNB sites of Dja'ade (Coqueugniot 1999b), Mureybet (Cauvin 1994), and Tell Halula. Obsidian from the Kalatepe workshop also made its way over the sea to Shillourokambos in Cyprus (Briois, Gratuze and Guilaine, 1997; Briois 2003), either carried directly or by way of the north Syrian PPNB sites that may have been the origin of the Cypriot settlements (Balkan-Atli and Binder 1999; 2000; Binder and Balkan-Atli 2001; Binder 2002).

However, the workshop techniques and the lifestyle of these PPNB settlements had little impact upon the ninth–eighth millennium Anatolian community of Aşıklı. Despite its proximity to the Kaletepe workshop site and the fact that workers from both sites used the same obsidian sources, perhaps working beside each other (Kayirli-Eriklidere and Nenezi Dag, Binder 2002: 83),[9] the people of Aşıklı did not adopt the obsidian technology of the Kaletepe workshop but followed a central Anatolian Epipalaeolithic tradition, producing microliths (Buitenhuis 1997; van Zeist and de Roller 1995:181). Unlike the PPNB people, who had fully adopted agriculture, they still lived at a "protodomesticated" stage, gathering and perhaps minimally cultivating local stands of einkorn, emmer wheat, and barley and beginning to "control" some animals, but still relying on hunting as their main means of subsistence. Vigne suggests, among various possibilities, that early inhabitants of of Aşıklı may have settled there in order to control obsidian sources, and subsequently developed their own ways of feeding themselves (Vigne and Buitenhuis 1999). This suggestion is supported by the presence of some of the wild progenitors of the Neolithic suite of cultivated plants (einkorn wheat, lentil, and bitter vetch) in the central Anatolian plateau (Zohary and Hopf 2000).

Other evidence for an independent tradition of Neolithization in central Anatolia beyond that provided by Aşıklı has been seen in the Epipalaeolithic culture known in the Antalya region at several sites, including the caves of Öküzini, Karain, and Belbidi and the rock shelter at Belbaşı (Esin and Benedict 1963). Öküzini Cave appears to have been a seasonal camp for Epipalaeolithic groups hunting wild goat in this mountainous region; a full range of tool types have been found, as well as six Neolithic burials. Karain Cave is located near the strait of Çubuk, which is an important passage connecting the Mediterranean region with Inner Anatolia and the Lake Region (Otte *et al.* 1995).[10] Belbaşı is a rock shelter approximately 24 kilometers southwest of the city of Antalya, and 7–8 kilometers north–northwest of the village of Beldibi, where the cave has paintings that may be symbols and an engraved representation of running deer. Most of these sites have some evidence for the development of a Neolithic culture (pottery). Contacts between coastal Anatolia and the Levant are shown by finds of dentalium shell from the Mediterranean, and grooved stones like those known from Natufian sites in

Syria, Israel, and Jordan and dated to early Aceramic Neolithic (Watkins 1998: 31). Most of these sites have some evidence for a change from food-collecting to food-producing. They also made primitive pottery, some of which may be ancestral to that found at Neolithic sites in the Lake District, and Esin and Benedict (1963) suggest that agriculture developed independently in the Anatolian cave region, rather than being diffused from areas to the east.

A site in the plain that has an Epipalaeolithic tradition linked to the Antalya cave region is Pınarbaşı (Binder 2002: 81). Dated to the second half of the ninth century, it is about 25 kilometers east of Çatalhöyük (Watkins 1996; 1998).[11] At Pınarbaşı, obsidian and decorated stone artifacts were similar to those of Boncuklu, situated about nine kilometers from Çatalhöyük (Baird 2006; 2007).[12] Boncuklu, a settlement of mud-brick structures spanning the ninth and eighth millennia BC, was occupied by "sedentarizing hunter-gatherers," who did not yet practice cultivation but gathered cereals and hunted goats, wild cattle, deer, wild horses, and numerous small animal species. It is interesting that clay objects seem to have been used for the sealing of bags or containers, suggesting the use of accounting practices. Archaeological investigation of the Anatolian plain thus continues to provide evidence that suggests the development of the Neolithic from the Epipalaeolithic tradition of the Antalya cave area, an area with some evidence for contacts with the Levant. The question of the origins of the Neolithic of the central plain is thus still an open one,[13] but, however it occurred, the result was a variety of different local cultures, as is illustrated very vividly at the noted site of Çatalhöyük in the Konya plain, the largest Neolithic site in the Near East, established about a thousand years after of Aşıklı in the Late Aceramic Neolithic (7500–7000 cal BC) (Hodder 1999, 2006; Balter 1998).

At Çatalhöyük the mud-brick houses were agglomerated (as they were at Aşıklı), with entries only through the roof, and with windows for ventilation at the tops of rooms.[14] This housing arrangement offered protection from the extremes of the steppe environment, with its cold and windy winters and hot summers. The continuing excavation and study of the site has shown, however, that the houses were not all contemporary as first thought. Apparently, they were also built in groups, some possibly as burial sites ("History houses" in which all sorts of remains were clustered), suggesting communal organization.[15]

The most immediately striking thing about Çatalhöyük is the fact that almost every house bears wall paintings and sculptures focused on wild animals. The skulls of aurochs appear on the walls of many of the houses, molded in high relief and painted or made by the covering of actual skulls with clay. Other paintings depict huge aurochs being attacked by hoards of tiny human hunters. Leopards also appear. But the most controversial of the wall decorations are large three-dimensional splayed figures, headless, some of which appear to be pregnant, or even in the process of giving birth. In Cauvin's interpretation (2000), in which the bull is seen as the male fertility figure, the headless figures are women (the "Goddess") giving birth.[16] But the recent discovery of a small stamp seal in the shape of a bear (with head), probably used for decorating cloth or leather, now brings this interpretation into question with the realization that the larger figures also probably represented bears, which are now recognized as having had an important role in the ideology of the site, along with the bull and the leopard (see Hodder 2006, see Figures 3.1 and 3.2).

Another find further complicates the interpretation of the role assigned to women in the ideology of the Çatalhöyük culture. It is a small figurine that from the front looks like the "typical" Near Eastern pregnant "Mother Goddess figure," but which from the back

Figure 3.1 Stamp seal of bear (11652.x1/Çatalhöyük Research Project). Reproduced by permission of Çatalhöyük Research Project.

portrays a figure of skin and bones or a skeleton. This puzzling piece raises the question of the interpretation of the numerous representations of pregnant women – were they intended to be seen as a woman giving birth to new life, or "as a woman turning into an ancestor, as a woman associated with death, or as death and life conjoined?" [17]

The economy of Çatalhöyük was heavily invested in hunting, although herded sheep and goats made up the largest proportion of the meat consumed (Russell, Martin and Leblanc 1996).[18] Cultivation was only at an early stage. People relied on a combination of gathering wild plants and cultivating wheat and barley, which probably did not require irrigation because of the very damp conditions. There is no evidence that grain was ground for bread. An explanation for these choices can be found in the environment – the steppe was home to large gregarious herds of aurochs, which could be easily caught by group action. In contrast, in the Middle Euphrates, where the "traditional

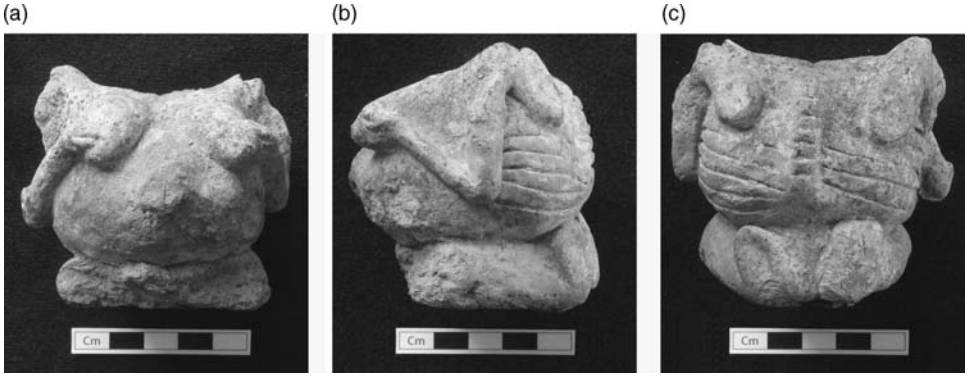


Figure 3.2 Woman as Life/Death (clay figurine 12401.X7/Çatalhöyük Research Project).

Neolithic package" was developed (Colledge, Conolly, and Shennan 2004), the woody environment and the small prey made hunting an energy intensive task of chasing individual animals; while good sport, this probably focused attention more on cultivation for subsistence. Moreover, the Middle Euphrates area was ideal for cultivation, even though it required more effort than the gathering or sporadic cultivation carried out on the steppe. In fact, Binder (2002: 83) sees two different cultural entities as coexisting in central Anatolia in the period 8200–7500 BC: the Aşıklı culture, which he sees as an original form of the Neolithic which reached its highest development at Çatalhöyük, and the Middle Euphrates Mureybet culture that exploited the sources of Cappadocian obsidian for a market in the Levant and Cyprus.

The central Anatolian plain was surrounded on all sides by forested mountains, hindering the further spread of the Neolithic, as Schoop (2005) noted when he entitled an article "The late escape of the Neolithic from the Central Anatolian Plain." To the west lay the Lake District, where lakes of various sizes occupy basins separated by forested mountain chains. The spread of the Neolithic from central Anatolia to the lake region cannot currently be traced; it may, in fact, not have "escaped" from the central plain at all, but instead may have developed independently from early manifestations in the Antalya cave area. It appears, however, in a well-developed stage at the site of Bademağacı, about 51 kilometers north of Antalya, on the main road (Duru 2002a; 2002b). At Bademağacı people produced well-made ceramics and also had a sophisticated technique of making terrazzo floors using limestone plaster. The settlement form was quite distinct from those of the central plain: houses were laid out in two parallel rows; the houses were connected or divided by only narrow gaps, and the rows faced each other across open squares of various sizes. This may have had a practical basis in a culture that depended upon the use of small animals and needed to provide an enclosable area in which they could be protected against carnivores and neighboring raiders (Schoop 2005: 50).

Despite differences in culture, the Neolithic sites of the lake region kept up a network of contacts with the central plain, as attested by close parallels between wall paintings and stamp seals found at Bademağacı and at Çatalhöyük.[19] Contact eventually extended to the west coast as well, in the Izmir region. There was thus a path by which the Neolithic could have reached from the Konya Plain to Burdur and on to the Aegean Coast (Duru 2004: 567–59).

The Aegean coastal region

Exploration of the Aegean coastal areas has been limited because of the enormous alterations that have been caused by the rise and fall of the sea level and the accumulation of river sediments along the coastline since the end of the last ice age (Kayan 1988; Meriç 1993). Until recently, most of the available information came from the investigations of David French in the 1960s (D. French 1969). At this point, however, extensive exploration is underway, providing ever-increasing information.

Neolithic material, akin to that of early Hacilar, has been recovered at the coastal site of Coşkuntepe in the Troad, where quern production was a specialty, and Seerher (1990; Meriç 1993: 144) has confirmed the presence of the Neolithic in this region, attesting to the diffusion of Anatolian elements as far as the Troad. Closer to possible

embarkation points from Anatolia to Greece, Meriç (1993) has added 10 new Neolithic sites along the floodplain of the Gediz river extending to the Gulf of Izmir, strongly suggesting that a main route (parallel to the modern highway) existed connecting the Aegean to the Burdur area of the Lake District.

The Izmir Region Excavations and Research Project, which started in 1985 with a single excavation at Panaztepe, has grown to include another long-term excavation at Liman Tepe and a rescue excavation at Bakla Tepe.[20] At Panaztepe, remains have been found from the Early Bronze to the second millennium. Liman Tepe was a major prehistoric settlement inhabited from the Neolithic (attested for the first time in 1997) until the end of the Late Bronze Age and continuing into the classical as Clazomenai. At Bakla Tepe there were EB I and Chalcolithic burials and an Early Bronze cemetery with numerous metal finds; a settlement with slag and crucibles; grill-plan buildings used as storage, houses; infant burials beneath floors of houses. All these are now submerged by the waters from the dam.[21]

These settlements in the Izmir region were part of a unified cultural phase during the Late Chalcolithic and Early Bronze periods which was also widespread in Aegean islands; there were extensive relations with the Cyclades and the Greek mainland. Metal technology in Late Chalcolithic and Early Bronze brought new impetus to these cultural developments.

Farther inland in the Izmir region was the settlement of Ulucak Höyük, 25 kilometers from Izmir but connected to the coast by the Belkahve Pass (Derin 2005; Abay 2005). Level V is dated to 6230–6055 BC (Derin 2005: 90). The site consisted of single-room rectangular houses with rounded corners and party walls; the walls were made of wood posts with pisé infill (mud slabs). One house was furnished in one corner as a workshop, with broken stone tools and a work platform. Finds included quantities of clay loomweights, heaps of clay slingshot pellets, bone tools, shells for decoration, and a terracotta stamp or mold with geometric designs. A complete anthropomorphic vessel found in Level V is similar to vessels found in Hacilar IV and II (Abay 2005: fig. 3. 23); and a pair of male and female figurines were also found in a terracotta vessel also containing flints from Level IV–V, as well as a flat figurine that preserves a remnant of finely woven fabric (Yildirim and Gates 2007: 287). The excavators find that the evidence is not yet sufficient to determine whether the Neolithic culture of Ulucak was developed from local Epipaleolithic cultures, or transported from the east by people migrating from the Lake District (Thissen 1999), or a combination of both.

Thessaly and Greece

That further transmission of the Neolithic to Thessaly/Greece was by sea rather than overland is suggested by the finding that the earliest layers of Hoca Çeşme, a site on the Aegean coast of Turkish Thrace in the first half of the sixth millennium, are contemporary with early Neolithic sites in Thessaly and Macedonia, and thus that these early farming communities were settled simultaneously, not over the period of time required for overland travel (Erdogu 2000: 161–4).

Thissen (2000) has postulated a possible scenario for a transmission from Anatolia: Neolithic settlements in the West Anatolian interior plains that had contacts with

seafaring peoples on the coast – whose sites are now submerged by silt. Those coastal people, he suggests, helped the farmers to cross the Aegean when they came under stress in the last centuries of the seventh millennium. In support of this, he points out that number of early site locations in West Turkey are immediately on the coast, including Coşkuntepe, Killiktepe (Miletus), Limantepe, and on islands (Agio Gala cave on Chios), or islets (Küçük Tavşan Adası). Their orientation was towards the sea, and agriculture may not have been their main subsistence strategy. Their involvement with the Aegean is suggested by a few pieces of obsidian imported from Melos – two analyzed pieces, from the site of Moralılar in the Akhisar Plain (Renfrew, Cann and Dixon 1965: 235), and production of obsidian artifacts at Altınkum Plaj I and Mersim Dere III in the southwest of the peninsula of Didyma, which is not datable, but could not be as early as Epipaleolithic or Early Neolithic (Gebel 1984). The problem with this hypothesis is the idiosyncratic nature of the Neolithic in Anatolia and the sudden presence of the "traditional" Levantine "Neolithic Package" in Greece and Thessaly.

This seems to favor Perlès's (2003b: 108) hypothesis that the settlement proceeded by a sea route from the Levant along the south coast of Anatolia. This makes sense in terms of the clear case for maritime migration that can be seen in the establishment of the Neolithic settlement of Crete by island hopping ca. 6000 to 5700 BC (Broodbank and Strasser 1991; Evans 1971).[22] To reach Greece, settlers would have followed the islands along the western coast of Anatolia, and then headed eastward.

The settlers who reached Greece and Thessaly may have come from various areas in Anatolia and the Levant, in a number of migration episodes in a continuation of the PPNB "great exodus," as suggested by recent investigation of the DNA evidence. In the case of northern Greece/Thessaly, this evidence suggests an origin in the Balkans, while for southern Greece, the probable origin is the northern Levant (King *et al.* 2008). Such various points of origin would account for the diversity in parallels between Greece and the Near East that have been identified on various Greek sites.

Crete

A clear case of maritime migration carried out by island hopping can be seen in the establishment of the Neolithic settlement of Crete ca. 6000 to 5700 BC (Broodbank and Strasser 1991; Evans 1971b),[23] New people arrived on the island bringing with them the full Neolithic complement of cereals, goats, sheep, cattle, and pigs. Since the Aegean islands were at the most minimally occupied at the time, the settlers probably came from the mainland, either from Anatolia, or from some point farther east. Genetic testing supports these areas as starting point for the migration.

The "traditional" view sees this as a one-time immigration or colonization. Thus, Hutchinson (1962: 91–2; fig. 13) suggests that the immigrants to Crete probably came in dugout canoes, a form known from an Early Minoan clay model on Mochlos. Evans opted for a maximum party of 100, and Broodbank and Strasser estimate that the minimum viable number of settlers would have been 40, with the settlers taking10–20 of each animal species, and grain for seed and to last until the first harvest. They suggest that these could have been carried in one trip of 10–15 boats, arguing that the limitations of the window of opportunity for successful transfer, coupled with always

uncertain weather conditions, would have precluded repeated voyages back and forth. Travel must have been in stages, with intervening stops made necessary especially for the larger animals; Hutchinson (1962: 92) suggests Rhodes, Karphathos, and Kasos as possible stopping points. As for the motivation of the settlers, Broodbank and Strasser, writing in 1991 (p. 242), adopted the traditional idea of population pressure, although they admitted that such pressure would have been more psychological than real, suggesting that, "pre-farming perceptions of socially acceptable population densities might have impelled farmers outwards to new areas well before the 'objective' carrying capacity of an occupied zone was reached."

More recent discoveries and study has modified this picture significantly. Rather than a "colonization event," it is seen as "one of many such events related to short distance relocations of people to or within the island, both before and after 7000 BC" (Efstratiou *et al.* 2004: 48). Evidence is growing for the possibility of pre-Neolithic visitations to the island going back at least 130,000 years with the discovery on the southern coast of hand axes, cleavers, and scrapers in the Acheulean style, as well as by finds on the island of Gavdos off that same coast (Mortensen 2008).[24] The arrival on Crete of small Epipalaeolithic groups by an island-hopping route was earlier suggested by finds of small stone tools and debitage from their production in the Samaria Gorge, and black chert implements from a location near one of the highest peaks of Mt Ida (Nixon, Moody, and Rackham 1988: 171).[25] This would parallel the evidence for the activity of Epipalaeolithic hunters at the rock shelter at Aetokremnos in Cyprus (see Chapter 1). In both cases it is possible that such early visitations/occupations lingered on until the time of the Neolithic settlement, or were followed by other similar groups, but that would not account for the sudden presence of the full Neolithic complement at the later occupation sites. Whether connected with this early visitation or independently, there is evidence that suggests short seasonal occupations until the middle of the sixth millennium and that a number of other settlements were made in different parts of the island in addition to that at Knossos. This conclusion is supported by pottery analysis that has shown that pottery was imported to Knossos from other areas in the island, especially the Mesara (Wilson and Day 1994), and analysis of the composition of the ceramic finds from Knossos that has established that the residents of Knossos obtained their clay from a number of different locations, mostly in north central Crete, but in one case from the quite distant area of the Bay of Mirobella (Tomkins and Day 2001; Tomkins, Day, and Kilikoglou 2004).

At Knossos, a small site of approximately 0.25 ha was chosen, on the mound that was later the site of the Bronze Age palace at Knossos (Broodbank and Strasser 1991). In the earliest levels there is no pottery, but two baked clay figurines have been found. When pottery does appear, it is in a range of fabrics (Furness 1953), and Tomkins and Day see the use of complex handles and rims as evidence that the technology was not in a formative stage of development but was imported, probably from Anatolia (Tomkins and Day 2001; A. Evans 1964: I, 14; Pendlebury 1963: 42).[26] By the end of the Neolithic, Knossos had grown to perhaps 4–5 ha (Evans 1971). It was located in an area rich in features that later became the locus of reverence and worship, prominent among which was Mt Jouktas, which appeared to the Minoans like the face of Zeus; other holy places associated with that mountain included its peak sanctuary, the caves of Chosto Nero and Stravomyti, and

Anemospilia, where a temple was later the site of a human sacrifice, probably intended to ward off the earthquake that brought down the temple.[27] Later there was probably competition with the nearby site of Archanes, which also shared these sacred places and was later the site of a palace that might be seen to rival that built at Knossos (see Chapter 6).

The Franchthi Cave and the Model of Jump-Dispersal Migration

The question of the Neolithicization of Thessaly and Greece, which also occurred during the period of rapid Neolithic expansion in the late seventh millennium (6400–6050 BC) (Perlès 2001: 109), was discussed above from the viewpoint of Anatolia. Other relevant evidence comes from the most significant site of early occupation in Greece, the Franchthi Cave, where changes from Epipalaeolithic to Neolithic were abrupt and dramatic. After a relatively brief break, or lull, in occupation,[28] emmer wheat and domesticated forms of barley and lentil, domesticated sheep and goats suddenly appeared, and the focus of occupation moved outside the cave (Perlès 2003a, 2003b). These changes are attributed to newcomers from the east who brought with them the necessary plants and animals for their subsistence.

An island-hopping migration, or Jump Dispersal model, for migration from Anatolia to Greece was suggested to Van Andel and Runnels (1995) by the lack of Early Neolithic sites in Thrace and eastern Macedonia that would have served as interim settlements in the slow Wave of Advance model of Ammerman and Cavalli-Sforza (see Chapter 2). They proposed that the Neolithic expansion in Thessaly was carried out by people who "jumped" across areas that were not suitable for their customary farming methods in order to reach more promising habitats, moving in an intentional and planned way (see also Renfrew 1986: 480). These jumps also involved the crossing of the Aegean by moving from island to island, none of which offered a suitable environment for their farming methods – in essence, the same process by which Crete was first settled (J.M. Hansen 1992; Perlès 2001: 45, 59–63). Little settlement was actually attempted on the Aegean islands used in this way as "stepping stones" before the third millennium. The settlers heading for Greece came probably from Anatolia and the Levant, probably in a number of migration episodes in a continuation of the PPNB "great exodus," thus accounting for the diversity in parallels between Greece and the Near East on various Greek sites.

The discovery of Epipaleolithic occupation at the Theopetra Cave in western Thessaly (Kyparissi-Apostolika 2000, 2003; Andreou, Fotiadis, and Kotsakis 2001), has not altered the picture, given the sudden widespread appearance of the Neolithic lifestyle, with non-native plants and animals, in areas of Thessaly in which there is no evidence for prior occupation (Runnels 2003). Moreover, recent use of a new method of sampling the earliest levels of mounds by coring has supported the assumption that Neolithic sites along the coast have been lost to marine transgression, but has failed to produce dates that support the hypothesis that the Neolithic package reached northeast Greece by means of a land route (Ammerman *et al.* 2008). Thus seaborne migration

remains the most likely explanation for the arrival of the Neolithic in Greece (Runnels and Murray 2001: 45–9).

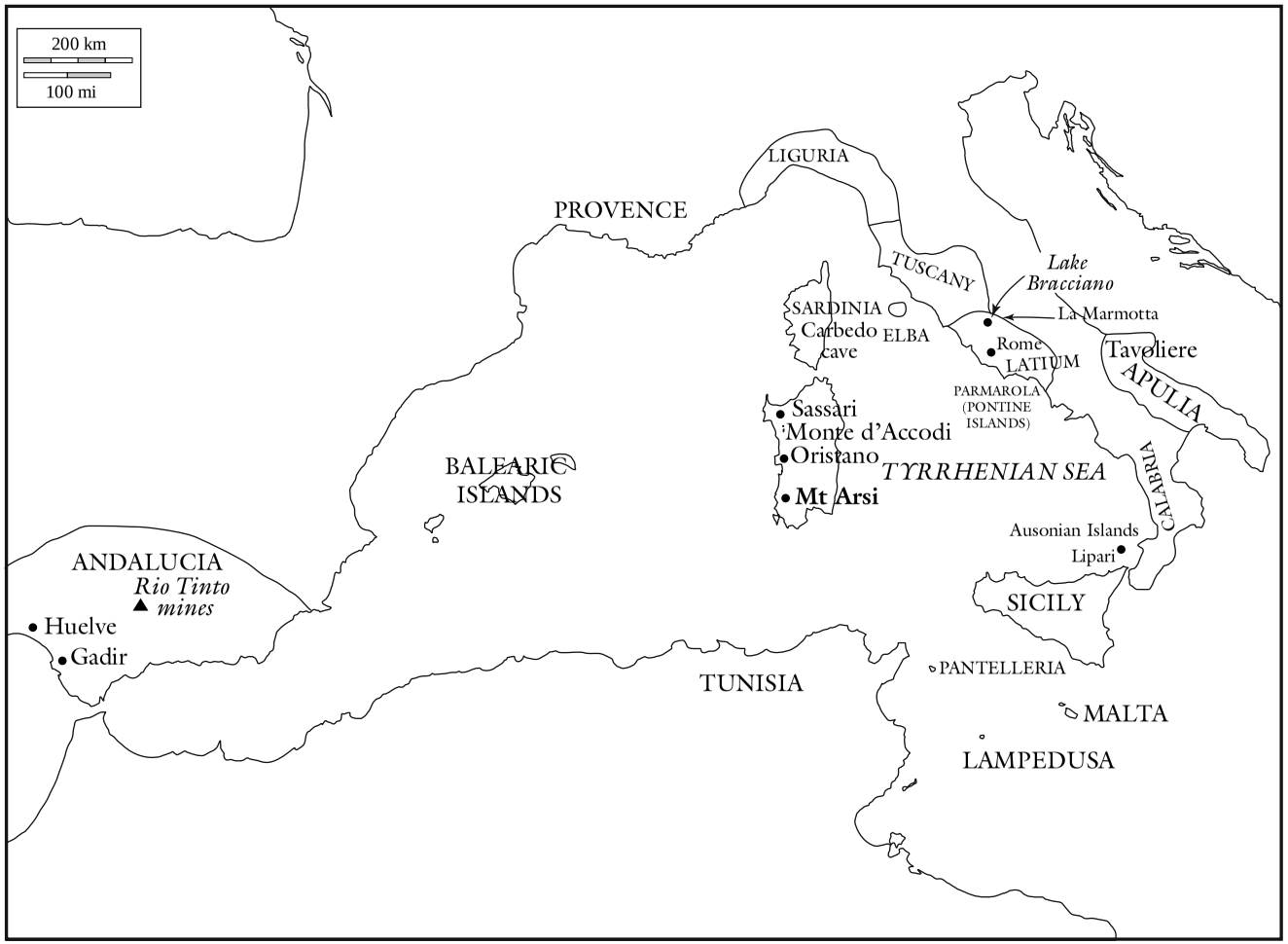
The Spread of the Neolithic and Language

An issue of relevance to the seventh-millennium arrival of the Neolithic in Greece is the claim of Colin Renfrew that the Indo-European languages were transmitted by the spread of Neolithic farming groups (Renfrew [1987]1990, 1996, 2003). While much criticized (see, for example, Zvelebil and Zvelebil 1989, 1990; and Renfrew himself, 2003), his hypothesis seems, at least in part, to have been vindicated by the discovery that the long-held belief that the Greek word endings *-ssos* and *–nthos* – as in "*thalassa*" and "*Corinthos*" – were remnants of a pre-Hellenic, pre-Indo-European language stratum was in error, and that they were in fact elements of one of the Anatolian language families (Luwian) now recognized as Indo-European by Finkelberg (1997). The picture, as Finkelberg portrays it, is thus not of one but of two waves of Indo-European speakers into Greece. The earlier wave, made up of speakers of an Anatolian Indo-European language – one might call them the Thalassa People, the earliest Sea People – occurred at the time of the seventh-millennium Neolithic migrations, while the second wave, which consisted of speakers of proto-Greek, probably entered in the troubled period at the beginning of the Middle Bronze Age, traditionally held to have been the occasion for the arrival of Greek speakers.

The Neolithic in the West: Cardial Ware

The Adriatic Coast

From Greece, the Neolithic spread westward and northward along the Adriatic coastal areas. At Sidari on Corfu, after a break with the Epipalaeolithic occupation, a settlement was made by people who used simple pottery of a type known at that time on the Greek mainland and Thessaly (Sordinas 1969, 1970). After another break in settlement, these people were succeeded by users of Neolithic Impressed Ware, and settlements spread along the east Adriatic coast and islands (Malone 2003: 244; Gaffney, Stancic, and Kirigin 1997; Bass 1998) and across to the west coast, to Apulia (Chapman and Mueller 1990). Only later would these Adriatic peoples adopt the Neolithic way of life fully, building villages, growing cereals and herding goats, sheep and cows. It was in this second phase that Cardium Pottery proper, impressed with shells of *Cardium edulis*, made its appearance. Cardial ware spread across the coasts of the western Mediterranean, reaching Latium, Tuscany, Sardinia, Corsica, and Liguria, the coasts of Provence, and even eastern Spain. It is used as a marker of the Neolithic in the west, a marker that signals the great navigation capabilities of these people, which is also demonstrated by finds of remains of species that can only be fished in the open seas.



Map 3.3 The Neolithic Diaspora in the West. After Şahoğlu (2005: 342–3).

Italy and Sicily

Discoveries in Italy add to the evidence for the continued westward transmission of the Neolithic by seafaring. In 1983 evidence was found at the Neolithic villages of the Tavoliere della Puglia in Apulia testifying to a Neolithic maritime migration and occupation in the late sixth millennium (Cassano and Manfredini 1983; Cassano *et al.* 1987; Bökönyi 1983; Ammerman 1990: 495; Leighton 1999: 54; contra Barker 2005: 349). The site was enclosed by a large ditch, typical of sites in the Apulian Tavoliere. Significant finds included Cardial or Impressed Ware (Tykot 1999: 70). At the Tavoliere the analysis of animal bones attested to the sudden and widespread appearance of an economy based on the keeping of domesticated sheep and goats in an area in which the wild species of these animals had not previously been attested (Ammerman 1990). Hot, dry, and nearly flat, with practically no forest cover, the environment was similar to the habitat of these animals in the Levant. The evidence from the villages of the Tavoliere thus favored the hypothesis of a migration of early animal keepers and their domestic stock from the east, probably by way of Greece and the Balkan peninsula, in which people whose ancestors had come from the Levant themselves moved further west. Geography, and the coastal location of the villages, strongly suggested that at least part of this journey was by sea.

From the settlements of the Tavoliere farming spread rapidly in two directions, up the Adriatic to northern Italy and along the Ionian coast to Calabria and Sicily (Leighton 1999: 52–3), and to eastern Sicily and then western Sicily. Obsidian from Lipari was carried regularly to the Italian coast by sea, where the Calabrian Acconia project (Ammerman 1985) has demonstrated its reduction and distribution to a number of coastal settlements of the Middle and Late Neolithic (Malone 2003: 283). Obsidian from Lipari also reached southern France, perhaps by way of Corsica, and from there it was carried to central and northern Italy and Croatia (Robb and Farr 2005: 36). Soon after 6000 BC Neolithic villages were widespread in coastal regions of Italy and Sicily (Ammerman 1987).

These are areas, which appear to have had very little Mesolithic occupation, and the few Mesolithic inhabitants, adapted quickly to the new economy, while the settlers in their turn borrowed fishing and gathering shellfish and the occasional use of microlithic implements from their Mesolithic neighbors. The new villages appear to have been egalitarian, with little evidence for differences in wealth, although the inhabitants were able to build substantial earthworks; timber, daub, and masonry buildings; and to create manufactured products of high quality. The use of various forms of impressed ware throughout the region attests to their engagement in extensive exchange networks (Leighton 1999: 55–7). The settlements took a variety of regional forms, with ditched sites being common in Apulia and surrounding areas (as at Conelle di Arcevia in the Marche, where the ditch is dated to the third millennium while finds in the area stretch from the Final Neolithic to Middle Bronze) (Cazzella and Moscoloni 1998; Brown 1991).[29]

More evidence of sea-borne settlement appears on the Tyrrhenian (western) coast of Italy at the site of La Marmotta. There, on a previously unoccupied site on Lake Bracciano, some 32 kilometers upstream on the Arrone River from the Tyrrhenian Sea, a sixth-millennium Neolithic settlement was found (Fugazzola Delpino and Mineo

2000, with additional bibliography; Kunzig 2002a; Kunzig 2002b). The site today lies some 8 meters under water, and its excavators found the remains of a Neolithic dugout canoe, preserved from oxidation and decay by the overlying water and mud. The boat, 10.5 meters in length, may have carried a square sail, for a block was found that could have served for a mast (Walter 2000: 140).[30] The boat is now on display at the Pigorini Museum in Rome.[31]

After landing at the mouth of the river, the settlers made their way upstream to the lake where they established their settlement, a village whose population eventually reached some 500 inhabitants. Cardial pottery has been found, including a four-handled clay jar decorated with cardial impressions said to represent a stylized man in worship, spikes, and the sun.[32]

The settlement of La Marmotta, which had no local Epipaleolithic predecessors, can only have been accomplished by long-distance immigration. The excavator of the site, Fugazzola Delpino, suggests that the settlement was established by people traveling in dugout boats from the east – Greece, Anatolia, or the Levant – and bringing with them the complete eastern "Neolithic package" of small animals, plants, and stone tools necessary for the establishment of new settlements, all of which are attested on the site. The hypothesis has been tested by experimental archaeology. Using only Epipaleolithic technologies, the Czech archaeologist Radomir Tichy and his students constructed a replica, which they then paddled up the Italian coast, west along the Riviera, and down the coast of Spain, and, after opting for land carriage to bypass the straits of Gibraltar, they arrived finally at Lisbon.[33]

Sardinia

Sardinia and Corsica are among the few Mediterranean islands that knew Mesolithic occupation; most islands were not large enough to support an economy of hunting and gathering. At the Corbeddu Cave in Sardinia two human bones have been found in a Mesolithic context, associated with butchered remains of animals; similar finds have been made on Corsica at several rock shelters (Tykot 1999: 69). All but one of these sites were in the coastal plain, suggesting that they may have been temporary campsites of occasional hunter-gatherers. But there is no evidence that travel back and forth to the mainland occurred, or that any artifacts were exchanged. The people did not use obsidian, and there is no evidence for cultivation or domestication of animals.[34]

The Neolithic was established on Sardinia at some time between the early sixth and the early fifth millennium (ca.5700–4700 cal. BC) (Tykot 1999: 70), when newcomers arrived by sea with a "Neolithic package," as well as Cardial Ware pottery.[35] They probably came from the coast of Tuscany, and were attracted by the presence of high quality obsidian of Mt Arci (Tykot 1996: 61; Walter 2000: 145). The mountain was a conspicuous landmark, visible from long distances at sea, and its potential as a source of obsidian could have been inferred from a comparison with volcanic Lipari, a source known and utilized since the ninth millennium.

Twenty-five early Neolithic sites had been identified in Sardinia and another 25 in Corsica by 1999 (Tykot 1999: 70). The newcomers brought in sheep, goats, and pigs. Tykot argues that they intermingled with a local Epipaleolithic population (Tykot 1999: 7), and there must have been some interchange of information. Many of the

sites were open-air, but caves were used as well; one of these was the coastal cave of Grotta Verde (Alghero, SS), now under water, in which single burials were found in niches with grave goods (Lo Schiavo and Ridgway 1987). Neolithic settlement seems to have been closely tied to the presence of obsidian resources, especially on Monte Arci (Tykot 1996).

In the Middle Neolithic, settlement expanded, especially in the Oristano plain and the Mt Arci obsidian outcrops (Malone 2003: 261–2; 269–70), probably as a result of the growth of the obsidian trade. Obsidian has been found in Sardinia at all Early Neolithic sites and in Corsica and Liguria (Tykot 1999: 72), attesting to long-distance contacts. Obsidian provides evidence for "intra-regional, multi-directional interaction networks" (Tykot 1999: 70–1); similarly, an interaction network is also attested by the presence of Cardial Ware, not only in Sardinia and Corsica, but also in southeastern Italy, southern France, and the Mediterranean and Atlantic coasts of the Iberian peninsula (Tykot 1996; Walter 2000: 145). Other materials must have been carried along on these networks as well – basketry, shells, flint, salt, and metal ores.

In the Late Neolithic, the fourth millennium cal. BC, a single culture, the Ozieri, came to overspread the island of Sardinia, with a late or sub-Ozieri phase extending into the third millennium, when a fully agricultural economy was established in Sardinia (Tykot 1999: 73–6). The well-known expressions of this culture were the megalithic monuments: rock-cut tombs – the *domus de janus* – ranging from single rooms to extensive multi-chambered structures; and the *menhirs* – standing stones – which often bear engraved schematic representations of a face, and frequently a dagger as well. The most impressive monument, however, is the ceremonial mound at Monte d'Accoddi-Sassari, a trapezoidal platform measuring 37.5 by 30.5 meters, built to a height of ca. 5.5 meters and approached by a 41.5 meters access ramp, with a rectangular structure on the top that was probably the shrine itself.[36]

Sardinia was rich not only in obsidian, but in deposits of copper and silver. By the third millennium the earliest evidence of metallurgical activity is attested on the island by finds of artifacts of silver and copper and their slags in Ozieri-phase "hut bottoms" (Usai 2005: 258–61). With the spread of metallurgy, the use of obsidian declined, but the island retained its significance as copper and silver replaced obsidian in the trading networks

The colonization of small-island obsidian sources and Malta

The small island sources of obsidian – the Aeolian islands, Pantelleria, Palmarola, and Lampedusa – which had been visited but not settled from the Mesolithic, were colonized fairly rapidly in the Neolithic (Leighton 1999: 53–4; 72–4). The Aeolian islands first saw settlement at the end of the fifth millennium when people from Sicily established a settlement on Lipari and another subsequently on Salina (Cavalier and Bernabo Brea 1993–4: 987–8; Castagnino Berlinghieri 2003: 45; 51, 121). Both these sites provided strong evidence for the working of obsidian, which suggests a motivation for their establishment. The large numbers of flakes found in all the Aeolian settlements, from the most ancient up to the Final Eneolithic, assure that the local population directly controlled the operations of extracting and working the obsidian, according to Nicoletti (1997: 260). Obsidian from Lipari was carried regularly to the Italian coast by

sea, where the Calabrian Acconia project (Ammerman 1985) has demonstrated its reduction and redistribution to a number of individual settlements of the Middle and Late Neolithic (Malone 2003: 283). Obsidian from Lipari also reached southern France, perhaps carried by way of Corsica and from there to Provence, as well as central and northern Italy and Croatia (Robb and Farr 2005: 36). The data from Lipari suggest that the height of obsidian extraction and working occurred toward the end of the Neolithic, with a subsequent progressive decline in the Chalcolithic and total disappearance at the beginning of the Bronze Age. Pottery found at the coastal plain at Contrada Diana provided the name for the Late Neolithic assemblage of southern Italy and Sicily, the Diana *facies*.

Other small-island sources of obsidian, Palmarola, one of the Pontine Islands, and Pantelleria (Tykot 1996), also saw settlement in the fifth millennium. The island of Palmarola was easily accessible from the mainland and its obsidian, while not of high quality, could simply be picked up on the beach; some was found at the site of La Marmotta on the Tyrrhenian coast of Italy (Walter 2000: 143). Pantelleria, some 200 kilometers southwest of Sicily, played a subordinate and localized role in the distribution of obsidian, with material from the island being carried to the tiny neighboring island of Lampedusa, and to Sicily, Malta (150 kilometers distant), and Tunisia (113 kilometers distant) (Camps 1986: 40, 41, 44; Trump 1963; Nicoletti 1997; Vargo *et al.* 2005).

Malta and its smaller neighbor, Gozo, although lacking obsidian, were settled even earlier than the smaller obsidian islands – before the end of the sixth millennium – which seems odd, given the much later settlement of most of the Aegean islands. With no obsidian to attract settlement, it seems likely that the motivation was land for farming, coupled with the absence of any more appealing target (those who jumped over the Aegean islands had the much more extensive lands of Greece and Thessaly in mind). Judging from similarities in pottery styles, the settlers on Malta almost certainly came from Sicily. The first evidence for human presence on the island comes from the Ghar Dalam cave on Malta, which contained large numbers of dwarf elephant and hippopotamus bones in the earliest, Pleistocene level; these bones were covered by a second layer that contained evidence of a population of red deer at a date of perhaps 18,000 years ago; finally, a third layer contained evidence of human presence, ca. 10,000 years ago.[37] Another site of early human occupation was Skorba (the later site of two mid-fourth-millennium temples), which appears to have been occupied from ca. 5000 BC for 1,500 years (Trump 2004: 58–9).[38] Though the Maltese islands lacked native obsidian, it was imported, mostly from Pantelleria until the temple period, and after that from Lipari. The development of the sophisticated gigantic monolithic temples (3500–2500 BC), attests to the independent development of Maltese culture (Trump 2004).

People from the central Mediterranean probably traveled as far as Tunisia, where finds of Stentinello pottery were reported; the same variety of impressed ware has been found in Calabria, Sicily, Malta, and the small islands and dated to mid-sixth/fifth millennium.[39] Such expansiveness underscores the adventurous maritime character of the Neolithic and the impetus to "move house." Interaction among these island peoples was so intense that in some cases, as in the Aeolian islands, a polymorphic culture developed, blending the culture of neighboring Sicily and Calabria.

One evidence of this shared culture is the widespread occurrence of Stentinello Ware. This mobility was the earliest stage of the great "cauldron" of central Mediterranean maritime activity that was later so important in propelling the development of Mediterranean state development.

The Far West: Iberia

In the sixth millennium, the Neolithic diaspora continued into Iberia. João Zilhão has recently created a new form of the Jump Dispersal model – "enclave colonization" – to explain this movement, attributing it to the arrival of small groups of seaborne settlers from the east, who settled in "enclaves" that were not previously occupied by Epipaleolithic peoples (Zilhão 1993; 1997; 2000; 2001; 2003). These groups engaged in purposeful and planned navigation long before any pressure on resources is documented archaeologically, and Zilhão sees them as motivated not by population pressures but by "social reasons" or a "pioneer ethic."

Özdoğan linked these factors and suggested that the motivation of migration was a desire to escape the strictures of growing central control – for which the public buildings of Jerf el Ahmar offer evidence – and to lead a more egalitarian life. This suggestion is supported by evidence that the settlers on Cyprus did not follow the mainland trend in the construction of large public buildings and that they continued the use of round dwellings, which may have symbolized a rejection of the new rectangular architecture and a reaffirmation of traditional "round house" values.

Iberia remained relatively isolated from the maritime interaction network that encompassed coastal Italy, Sardinia, Sicily, and the smaller islands. The reasons for this are probably to be found in the constraints imposed upon seafaring in the Mediterranean by distance, currents, and weather patterns. Seafaring in the Mediterranean was safest when land was kept in sight – Braudel called the vast areas beyond sight of land "as empty as the Sahara" – until the first millennium, when knowledge of astronomy allowed navigation over open water and at night, ships generally avoided its dangers if possible (1972: 1: 103; 1: 25). Boats leaving Iberia and heading directly east to Sardinia, the apparent direct route, would have faced this problem, losing sight of land once they had passed the Balearic Islands. The solution was to follow the coast, but this involved substantial risks too: the Mistral winds blow from the northwest or north of Europe through the valley of the Rhône River to the Mediterranean throughout the year, but most often in winter and spring, often bringing violent winds and blowing ships far off course, driving them onto coastal rocks, or sinking them (Braudel 1972: figs 20 and 21, Mistral mishaps). It is not surprising, therefore, that there is no evidence for significant Iberian participation in the metals trade with the wider Mediterranean until the thirteenth and twelfth centuries BC (Chapman 1990: 33–4; 1995: 36). It was only at the end of the second millennium that ships were able regularly to follow routes across the high seas, when the Phoenicians had developed the means of navigation. But even Phoenician ships were brought to grief by storms, and Odysseus's disaster-tinged adventures attest to the hazardous conditions of sailing in the mid-Mediterranean.

Egypt

Cattle herding had been practiced in the Western Desert as early as the eighth millennium, in what is called the Saharan Neolithic, but there are no signs of the development of agriculture (Hendrickx and Vermeersch 2002: 32). Hassan (1988) argues for an introduction of the Neolithic by a gradual mixture of these cattle herders of the Saharan Neolithic with new arrivals from the Levant who brought the basic elements and practice of Levantine agriculture – sheep, goats, cattle, and pigs, six-row barley and emmer wheat (Hendrickx and Vermeersch 2002: 37; Caneva 1992; Schmidt 1996; Wenke 1991: 292) – with possible input from the Sudan as well.

Evidence now shows, however, that influences from the Levant reached the Faiyum first, while those from the Western Desert arrived only later (see Chapter 6, Map 2) (Caneva 1992). Caneva finds no evidence for transit over the land bridge between the Levant and the Nile Valley, but she does not consider the possibility that the Neolithic settlers may have arrived by boat by way of the Nile and the Bahr Yusef, a tributary of the Nile that fed into the Faiyum at Lake Moeris (which today is a smaller lake, called Birket Qarun).[40] The evidence thus seems strongly in favor of the hypothesis that it was people arriving from the Levant, possibly in boats, who, at the comparatively late date of, ca. 5450–4400 BC, introduced the Neolithic economy into the Nile Valley in the fertile basin of the Faiyum.

Motivations for Migration

Many factors may be involved in the decision to migrate – ideology, curiosity, a spirit of adventurism, a desire to extend the domestic sphere, or, alternatively, an attempt to escape the growing controls exerted by a community in transition trying to preserve its traditional way of life against increasing odds. Even Özdoğan, who traces the beginnings of the spread of the Neolithic lifestyle to a period of social collapse, sees the collapse not as the cause that set these people in motion, but as the result of their flight from a growing elite-based organization that exerted too much control over their lives.

Long-distance migrations involving sea travel obviously required advance knowledge and planning. However, beyond knowledge, planning, and foresight, both confidence and considerable daring would have been needed to rally support for a migratory move. Despite their elusive, "psychological" nature, curiosity and a drive for knowledge almost for its own sake must have been important factors in the cultural mix that again and again gave rise to such undertakings. Moreover, only a very capable and charismatic leader could have convinced his followers that such a radical move was possible. Thus, several scholars cite individual initiative and adventurousness as the driving force behind such ventures.

Nevertheless, an element persuasive enough to draw large numbers of people away from a settled life at a site that had been comfortable for generations, seems to be missing. The rise of one or two – or even a dozen – charismatic leaders cannot be the answer, for it only pushes back the question of what caused this new thinking in even a few individuals. Thus Jacques Cauvin's (2000) attribution of the Neolithic expansion

to "a completely new ideology," a new symbolism that can be defined as the religion of the Neolithic, expressed in "Mother-goddess" figurines and a male figure associated with the bull, has drawn a great deal of attention, while not escaping controversy (Hodder 1990; Watkins 1992). According to Cauvin (2000: 208), this new ideology, by "opening up the sphere of the intimate self, awakened in the people of the Levant the necessary energy for a new type of expansiveness." But, as we saw above, the identity of the "Mother Goddess" is not without its problems.

On the other hand, while a new ideology may have been the cause of the Neolithic Diaspora, it seems equally possible that it was a result of the operation of a basic human drive, the "out of Africa" syndrome, an innate human need to keep pushing the barriers, to escape confinement, keep moving ever onward. We see such movements again in the Greek and Phoenician overseas settlements of the mid-first millennium, and in the "conquest of the West" in American history. By the time of the first-known overseas Mediterranean settlement to Cyprus in the PPNB small migrating groups had been treking slowly onward for millennia along land routes, often settling along rivers where they gained experience with water travel. However, to settle an unknown place across the water, beyond sight, with only the slightest "information" from explorers' reports – or fantastic tales – still required an amazing degree of faith. Unlike earlier wanderings, crossing water barriers with whole households required dramatically new levels of persuasive leadership, group action, and cooperation – which may cast some doubt on the hypothesis that people embarked on such moves to escape the pressures of increasingly organized group living.

One important consequence of these resettlements was that the need for a sustainable population in the new foundation probably required the pooling of people from a number of different "cultures," people who had varying experiences, skills, and expectations. We have seen some evidence of this in the mixed traditions of settlements on Cyprus that raise questions about the origin of their settlers. At worst – and probably often – this would have resulted in a failed (and archaeologically unrecorded) settlement attempt. At best, however, it would have created new pools of knowledge, and opened up minds, generating awareness of alternative views of the world. Thus, the maritime spread of the Neolithic resulted not simply in the extension of the areas of human cultivation but in an expansion of human experience into a world beyond sight and even imagining. This was truly revolutionary.

Notes

1 Simmons (2007: 185) argues that the evidence for climate change is badly weakened by the chronological confusions of scholars over calibrated, uncalibrated, and calendar years.

2 See *Science* 14 December 2001 Vol. 294 (www.sciencemag.org). See http://archeo.amu.edu.pl/2278.pdf for an interesting article about the importance of plaster in Neolithic life, especially at Çatalhöyük. See http://www.sabi-abyad.nl/tellsabiabyad/resultaten/index/0_49/49_57/?language=en

3 From 1933 to 1938 excavations were carried out in the Amuq by the Braidwoods for the Oriental Institute of the University of Chicago: at Tell Ta'yinat on the Orontes, at Tell

el-Judaidah; Çatalhöyük, Tell Dhahab, and Tell Kurdu (Braidwood and Braidwood 1960); Woolley also worked at Tell Aichana and Al Mina (Woolley 1937). In 1995 the Oriental Institute returned to the Amuq valley with the Amuq Valley Regional Project (AVRP) (Yener and Wilkinson 1995–6; Yener *et al.* 2005). See http://oi.uchicago.edu/research/pubs/ar/99-00/amuq.html (accessed February 18, 2011); http://www.fas.harvard.edu/~semitic/wl/digsites/NLevant/Tayinat2006/ (accessed February 18, 2011).

4 The port of Al Mina operated in the first millennium BC at the mouth of the Orontes; however, no evidence of its earlier existence has been found. Woolley (1953, 171) believed that this was because of erosion, and since the nearby hill-top settlement of Sabouni did yield large quantities of imported Mycenaean pottery of the fourteenth and thirteenth centuries he suggested that it was the habitation area of an early Al Mina. That, however, still leaves a long chronological gap before the time of the Uruk Expansion.

5 Whose earliest phase, VC, dates to the second half of the seventh millennium (Moore 1978: 208–10; de Contenson 1983: 61–2).

6 Watkins' revision of the chronology: PPNB on Cyprus ends about ca. 5200, and PN begins with Philia Drakos A about 5000, followed by Sotira 3500, then Kalavassos B 3180±110, Chalcolithic I 2670±80–2580±80, Erimi Chalcolithic II 2500.

7 See www.khirokitia.org/english/minima.shtm (accessed February 18, 2011).

8 See http://www.une.edu.au/cat/ (accessed May 23, 2011).

9 See http://www.liv.ac.uk/sace/research/projects/pinarbasi (accessed February 18, 2011).

10 See http://whc.unesco.org/pg_friendly_print.cfm?cid=326&id=666& (accessed February 18, 2011).

11 See http://www.opencontext.org/database/project.php?item=TESTPRJ0000000004 (accessed February 18, 2011).

12 See http://www.turkishdailynews.com.tr/article.php?enewsid=52670 (accessed February 18, 2011).

13 For a discussion of the various suggestions, with references, see Cutting (2005: 26–30).

14 Çatalhöyük was first discovered in the late 1950s and excavated by James Mellaart between 1961 and 1965. Since 1993 it has been undergoing renewed excavation and investigation by an international team under the direction of Dr Ian Hodder of the Çatalhöyük Research Trust, Cambridge University. Today a visitors' center, a model house, and the display of a large trench that reveals the various levels of occupation make it one of the most worthwhile archaeological sites for visitors in Turkey; it is in the vicinity of Konya, a major tourist center, but a car is required to reach it and the route not well signposted. See http://www.globalheritagefund.org/where/catalhoyuk.html (accessed February 18, 2011); http://www.catalhoyuk.com (accessed February 18, 2011).

15 http://www.catalhoyuk.com/downloads/Catal_News_2007.pdf (accessed February 18, 2011).

16 For discussion of the "goddess hypothesis" by Hodder and Anita Louise, one of the "Goddess Community" who frequently visit the site, see http://www.catalhoyuk.com/library/goddess.html#top

17 http://www.catalhoyuk.com/newsletters/12/nl12_01.html (accessed February 18, 2011).

18 See http://www.catalhoyuk.com/archive_reports/1996/ar96_10.html (accessed February 18, 2011).

19 Thissen (1999) argued that these contacts – and the Neolithic lifestyle – extended in another direction, to the northwest region around the Sea of Marmara, Iznik, and Eskişehir, traceable by similarities in cooking vessels adapted to a specific cooking method. Because similarities did not extend to settlement organization and housing types, it was unlikely to have been the

result of the migration of groups, however, and Thissen suggests it may have been transmitted through exogenous marriage ties.

20 See http://tayproject.org/TAYmaster.fm$Retrieve?YerlesmeNo=296&html=masterEngDetail.html&layout=web (accessed May 23, 2011).

21 See http://tayproject.org/TAYmaster.fm$Retrieve?YerlesmeNo=296&html=masterEngDetail.html&layout=web (accessed May 23, 2011).

22 See http://www.blackwell-synergy.com (accessed May 23, 2011). Date from Rutter's Dartmouth web site, http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/2.html#10 (accessed February 28, 2011).

23 Date from Rutter's Dartmouth web site, http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/2.html#10.

24 Evidence is growing for the possibility of pre-Neolithic visitations to the island going back at least 130,000 years with the discovery on the southern coast of artefacts, including hand-axe, chopping-tools, triangular pick in the Acheulean style, as well as by finds on the island of Gavdos off that same coast.

25 http://sphakia.classics.ox.ac.uk/emccv1988.html#8 (accessed February 28, 2011).

26 Contra Rutter, http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/2.html#10 (accessed February 28, 2011).

27 http://www.uk.digiserve.com/mentor/minoan/anemospilia.htm (accessed June 22, 2008).

28 A break of perhaps 500 years? Perlès (2001: 46–9), describes the cave as "nearly abandoned" at the end of the Final Mesolithic, allowing for the interaction of Mesolithic and Neolithic populations, but J.M. Hansen (1991: 138, 1992: 241) sees abandonment.

29 See http://www.incastro.marche.it/incastro/arcevia/archeologia.STM (accessed December 13, 2010).

30 A Mesolithic pine dugout, hollowed out by fire and at least 5 meters in length, has been found in France, proving the regular practice of navigation on the river Seine (Mordant and Mordant 1992: 61 and fig. 7.14); another Mesolithic example was found in at d'Estavoyer-le Lac in Switzerland (Ramseyer *et al.* 1989).

31 http://www.usnews.com/usnews/culture/articles/020408/archive_020512.htm (accessed May 23, 2011).

32 http://www.usnews.com/usnews/culture/articles/020408/archive_020512.htm (accessed May 23, 2011).

33 http://www.usnews.com/usnews/culture/articles/020408/archive_020512.htm (accessed February 28, 2011).

34 Claims of occupations by protohumans in the Palaeolithic period, one about 17,000 years ago and another at the end of the Paleolithic, are accepted by Dyson and Rowland (2007), but have generally met with skepticism (Cherry 1990: 175; 1992: 29–30; Tykot 1999: 69).

35 This is contested, with advocates for indigenous development and demic diffusion, or a mixture of these with the introduction of people bringing the domesticated animals (Simmons 2007), but the evidence still points to a significant influx of people, bringing with them Cardial pottery, sheep, goats, and pigs, and establishing a Neolithic lifestyle, and gradually intermingling with the existing Mesolithic population.

36 See http://www.panoramio.com/photo/677716 (accessed February 28, 2011).

37 See http://www.heritagemalta.org/ghardalam_sites.html (accessed February 28, 2011).

38 See http://www.heritagemalta.org/skorbatemples.html (accessed February 28, 2011).

39 Stentinello ware is named after the Sicilian site where Orsi first found it: see Leighton (1999: 61–3 and fig. 29: 3, 7–10).

40 For a full bibliography, see Hendrickx (1995).

Chapter 4
Urbanization in Mesopotamia

Metallurgy and Urbanization: The Ubaid Sites in Upper Mesopotamia

It was long believed that urbanization first developed in the late fourth and early third millennium in southern Mesopotamia, the "Heartland of Cities" (Adams 1981; Roaf 1990). But the recent discoveries in northern Mesopotamia, in the hilly flanks of the Taurus mountains, have "turned this model upside down" (Oates *et al.* 2007; Ur *et al.* 2007). By the end of the fifth millennium, long before the urban "revolution" of southern Mesopotamia, the practice of metallurgy that had begun at Çayönü had spread to a number of sites in eastern Anatolia and to the area of upper Mesopotamia centered on the system of rivers. Metal objects were suitable not only for trading but for accumulation and storage, leading to differences in "wealth" unknown before. Moreover, the transformative effect of metallurgy, the special skills of the metallurgist, and the striking show that he put on as he worked, set him, his skills, and the new material apart.[1] A number of scholars see the development of metallurgy as the primary cause of the development of stratified and organized communities (urbanization), and in many of the sites in this upper Mesopotamian area of early metallurgy, its introduction was accompanied by significant urban development. Of these sites, Tell Brak, Arslantepe, Tepe Gawra, Hacınebi, and Tell Hamoukar offer a sampling of these developments.

Tell Brak

Tell Brak, on the Khabur river, was first excavated in the 1930s by British archaeologist Max Mallowan and his wife Agatha Christie, and recently by a Cambridge University team led by Joan Oates. The settlement had reached its greatest size (over 100 hectares in occupation area) by the mid-fourth millennium (Schwartz 2001: 246; Matthews

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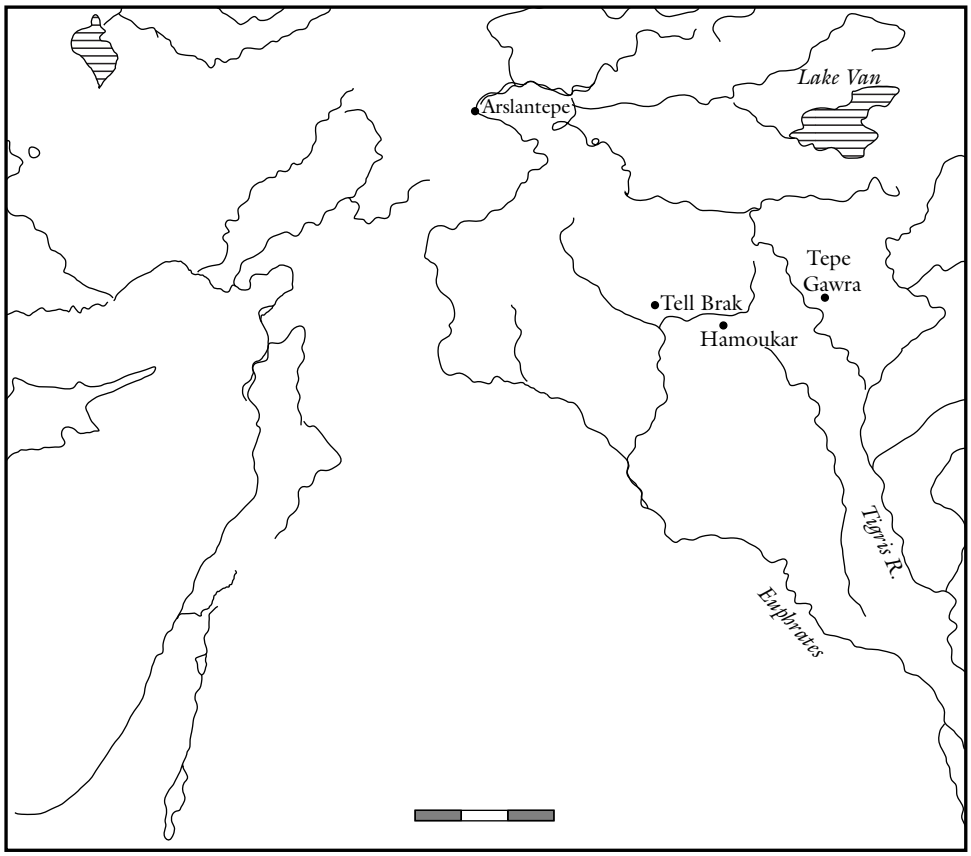


Map 4.1 Fifth and sixth millennia Ubaid sites in Upper Mesopotamia.

2003: 25–38). Its massive casemate walls may date even earlier, to the Early Northern Uruk period). A ritual structure was built with elaborately niched walls (Oates and Oates 1997: 296, Fig. 17), an expression of divine power also found in the Warka Temple in the southern city of Uruk.

The houses contained a wide range of pottery with some fine ware; a bead of rolled gold sheet; and several Eye Idols that confirm that the earliest platform of the famous Eye Temple dates back to this period (Oates and Oates 1997: 291; Schwartz 2001: 252). A large number of spindle whorls (with over 30 unbroken examples) reflects the importance of textile production (Oates and Oates 1997: 291). There is also evidence for woodworking shops, and, in Late Northern Uruk levels, sophisticated metalworking is attested by the discovery of a mold for the production of axes (Oates and Oates 1997: 295, Fig. 16). These production facilities would have required of large numbers of workers, and methods for their management were well developed, as can be seen in the earliest beveled rim bowls, which provide evidence of food allotments, and finds of a single numerical tablet (Jasim and Oates 1986: 359, Fig. 4b), a variety of clay tokens, and two pictographic tablets that provide evidence of an accounting system (360, Plate 2a). Contacts with the south are revealed by a mixture of northern and

southern characteristics in the pottery, and by a cylinder seal – a sealing device typical of the south – and its impression, portraying dancing bears, snakes and other animals (Oates and Oates 1993: figs 31 and 44).

Arslantepe

Arslantepe (level VIII) (Frangipane 2002: 123; Frangipane 1996; Yener 2000: 48), situated in a metal-rich area of the Anti-Taurus about 15 kilometers from the Euphrates, experienced a rapid development of metallurgy, with smelting being used to produce a variety of artifacts from arsenical copper (Frangipane and Palmieri 1999; Palmieri *et al.* 1999). A monumental burial, in which a "royal" person was buried with rich metal offerings of mixed local and Transcaucasian types, accompanied by at least two sacrificed victims, reveals the extent of metallurgical skill and expertise and the mixture of cultures. Itinerant smiths from the Transcaucasus may have been involved in the diffusion of metallurgical techniques and tool and weapon types (Yakar 2001). An early recording system, using seals and sealings (seal-impressed clay documents) characteristic of the Ubaid culture that went back into the mid–late fifth millennium, was used primarily to regulate metal production and trade (Yakar 2001: 115). In the early fourth millennium (Level VII), the pottery was a chaff-tempered assembly related to that in the Amuq (the plain of Antioch). In a large monumental building with black and red wall paintings and plastered mud-brick columns lining its walls a large platform with a hearth dominated the central room; scattered about were hundreds of mass-produced bowls and numerous sealings, indicating food distribution under administrative control (Frangipane 2003). This supports the current view that the northern economic and administrative centralization was of local origin, rather than, as had been thought, being a product of southern influence, In Level VIA, however, evidence of southern Uruk presence and influence does appear – the local chaff-tempered pottery of Amuq F type was replaced by mass-produced ceramics with Mesopotamian affinities (Algaze [1993] 2005: 91).

Tepe Gawra

Another northern site, Tepe Gawra, was a small site east of the Tigris river inhabited by some 200 people at most, but its location, by one of the few natural passes from Mesopotamia into the Iranian plateau, made it a key trading center (Rothman 2002). The site had a long life and went through various ups and downs, but with increasing economic and administrative complexity from ca. 4300 to 3700 BC. Evidence for trade connections came from the abundance of semiprecious stones, gold, and electrum found in the tombs. The richest of the 55 tombs contained lapis lazuli from northern Afghanistan (Herrmann 1968; Bavay 1997); gold; electrum; turquoise from Iran or Afghanistan; amethyst; agate; quartz and jadeite, found in Kazakhstan and Turkestan; beryl; diorite, perhaps from northeastern Turkey; haematite; and serpentine (Tobler 1950: 176, 192, 200). There was clear evidence for social differentiation, for some tombs contained only a few status items, while many others were without any valuables at all. Majidzadeh (1982) interpreted the finds as donations from pilgrims to a shrine in the city and saw the city as subsisting mainly on agriculture. The usual function of pilgrimage sites as locations of exchange, however, suggests a more complex picture: visitors did indeed dedicate valuables, but as part of their principal activities as merchants.

The city had three monumental buildings that have been interpreted as temples by virtue of their orientation to cardinal points, niching, and buttressing, although the usual sign of temples, platforms, were not preserved (Rothman 1997: 184).

Other artifacts found at Gawra attest a variety of occupations – obsidian working, woodworking, weaving, pottery production, the storage of various materials, and religious activities, although there is no clear evidence for metallurgy (Rothman 2002: 68). Nor is there evidence for farming on a scale necessary to support the community; food was apparently supplied by neighboring communities (contra Majidzadeh's interpretation of the site as a simple agricultural community).

Hacınebi

Still another Ubaid urban site, Hacınebi, occupied a strategic site on a bluff overlooking the east bank of the Euphrates. It lay on the north–south trade route linking Mesopotamia and Syria with the metal resources of highland Anatolia and at the midpoint of the major east–west river crossing zone. The site was occupied from ca. 4100–3300 BC, and occupation can be divided into two periods, the period before contact with southern Uruk (Phase A and B1, 4100–3700 BC), and that after contact (Phase B2, 3700–3300 BC).

In its earliest, pre-contact phases, the pottery was part of the widespread local chaff-tempered ceramic assemblage broadly similar to Amuq F pottery (Pollock and Coursey 1995). The settlement was highly developed, with monumental architecture and abundant evidence for metalworking: four smelting pit furnaces, a tuyere or blowpipe used to heat the ore for smelting, crucible fragments still containing copper and slag, open-faced casting molds, and several examples of finished products (Özbal 1997; Özbal, Earl, and Adriaens 1998; Stein 2001; Stein 2002: 150). Evidence for copper smelting and casting also appears throughout the settlement, suggesting that production was a cottage industry carried out by many small operators. A chisel dating to Phase A attests that the technology for producing high-quality functional copper tools was already known at the site, and a pair of earrings that preliminary tests suggest were silver may attest the working of that metal. The most probable source of the copper was Ergani, a site some 200 kilometers to the north, from which it must have been brought by raft down the Euphrates (Stein 2001: 277), attesting long-distance transport. Other evidence for river transport consists in the discovery of reed-boat fragments dated by stratigraphically associated 14C samples to 3800 BC, still the pre-contact phase. Other imports included chlorite pendants from the east (Schwartz 2002), and marine shell ornaments brought from the Mediterranean (Stein 2002b: 150), indicating contact with the coast was already established. In the workshop and storage areas, stamp seals and seal impressions provide evidence of the exercise of administrative control (Pittman 1998; Frangipane 1994). There is also evidence for domestic housing, and prestige goods found in the burial of a child suggest that social ranking and hereditary elite status had developed.

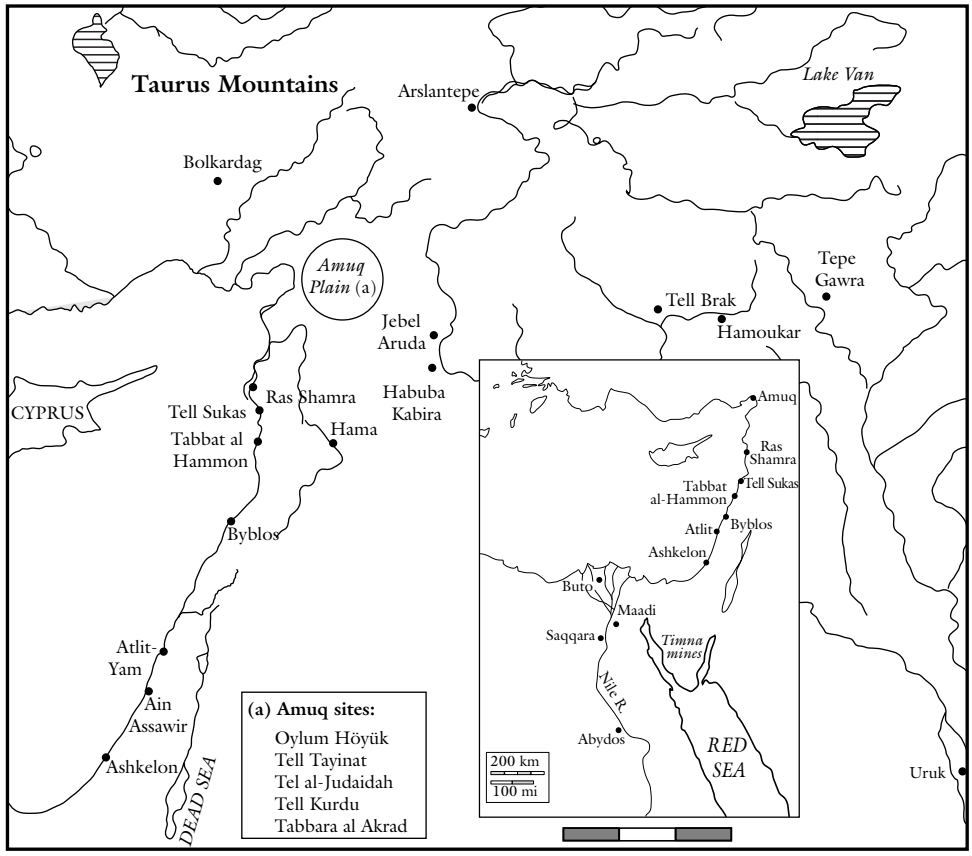
Tell Hamoukar

This site in the Khabur River basin is unusual in that it did not lie directly on a river, as did similarly sized mounds in the area, such as Tell Brak. Its attraction, however, was probably its location on a key trade route from Anatolia across northern Syria and along the river Tigris into southern Mesopotamia.

Surface finds indicate occupation in the earlier fourth millennium (4000–3500 BC), as well as in the late Uruk period (ca. 3500–3000 BC).[2] The earliest evidence of activity at the site is a large mound south of the main site where excavators found large amounts of obsidian, including cores, tools, and blades as well as large amounts of production debris, clearly indicating the mass production of obsidian objects, dated to 4500–4000 by pottery fragments (McGuire *et al.* 2002; Ur 2002; Pittman 1998). This activity may have provided the economic core for the development of urbanization in the Late Chalcolithic. At that time, massive walls protected the city, and a large building with industrial-size ovens provides evidence of cooking on an institutional scale, while the number and range of local-style stamp seals and seal impressions found in the building attests the existence of an administrative hierarchy. Pottery remains also attest Uruk influence – beveled-rim bowls, four-lugged vessels, conical cups, handled cups.

The Uruk Expansion

Considerably later than this northern development, in the fourth millennium, cities developed in the alluvial lands in the Mesopotamian south that had long been thought



Map 4.2 Fourth millenium Uruk expansion: Amuq and Egypt.

to have been the earliest urban settlements (Adams 1981; Pollock 1999). The results of urbanization in the south are well known – the immense, lavishly decorated temples and ziggurats that required large numbers of workers to build and maintain; the hierarchy of priests and servants needed to feed and care for the divinities who protected and justified the system; and the extensive network of smaller towns and villages necessary to support and supply this vast apparatus. This bureaucratic system required a more elaborate method of record keeping than the simple tokens and tallies of the past, and this led to the development of a method of writing.

Although there had been sporadic contacts between south and north in the first half of the millennium, as noted above, by mid-millennium the increasingly urbanized and growing populations of southern Mesopotamia began to move outwards in search of resources and, possibly, room for their expanding populations. They moved first into Susa and Susiana in Iran and then northward, mainly following the Euphrates into the Ubaid area of the Middle/Upper Euphrates Valley, and reaching as far as the Khabour, in what is called the Uruk expansion.

The northern sites of this expansion were, for the most part, discovered in the course of rescue operations at sites of dam construction on the Tigris, Euphrates, and Khabur rivers. They varied in size and composition. In some cases, settlement took the form of the implantation of entire communities of southern Mesopotamians on previously unoccupied sites (Habuba Kabira South); in other cases, people moved in smaller numbers and settled as self-contained groups (*karums*, possibly consisting only of men) (Rothman 2002: 57), within existing local Ubaid communities, as in the case of Hacınebi; and in still other cases, individuals seem to have filtered in and lived among the northerners, who adopted some of their ways, apparently in a process of emulation.

It was Guillermo Algaze who first brought the Uruk phenomenon to widespread attention in the 1980s and called it the Uruk expansion (Algaze 1989; [1993] 2005). He interpreted it on the basis of the assumptions of the time: portraying it in terms of World Systems Theory, a theoretical model devised by Immanuel Wallerstein (1974) to explain the rise of the modern capitalist system in the sixteenth century. In accordance with this model, Algaze interpreted the expansion as the systematic movement of the developed culture of the south into an undeveloped periphery set up to exploit the resources (metals, timber) of its undeveloped northern neighbors. He classified sites that lay at strategic nodes in lines of communication as "enclaves," intended for primary control of the transport of raw materials obtained in the north (Habuba Kabira South). Others, established along routes of communication, he classified as "stations" (Hassek Höyük) Finally, more isolated sites he characterized simply as "outposts" (Godin Tepe).

As more has been learned about developments in this northern area in the pre-Uruk period, before mid-fourth millennium, Algaze's original formulation has been subject to much questioning and revision, including revision by Algaze himself ([1993] 2005: 129–138). While in some respects the debate has been ideological, continuing excavations in the area have revealed clear objective differences within his proposed settlement types and have blurred the edges of his categories, making revisions in his interpretation necessary. Perhaps the most fundamental modification of Algaze's original theory has come, however, from the recognition that the area into which the communities of the Uruk expansion entered was not a cultural void but was already

occupied by complex and sophisticated communities with far-reaching contacts extending into eastern Anatolia and the Levant, as well as into southern Mesopotamia itself. This better understanding of the northern Ubaid accomplishments has resulted in the recent chronological re-evaluation of the Uruk expansion by the American Research Advanced Seminar "Mesopotamia in the Era of State Formation" (Rothman 2001). This re-evaluation has changed the chronological picture of the Uruk expansion from that of a short-lived occupation of a century or two in the mid-fourth millennium (Algaze 1989: 571), to one of 400–600 years, consisting of two or more phases, the first ca. 3400 BC, the second ca. 3100 BC. This new chronology is especially important in assessing the influence that Mesopotamian culture, transmitted through the Uruk settlements, and then to Egypt by sea, may have had on the development of Egypt (Joffe 2000; Oates 1993).

Habuba Kabiri

The best known of the Uruk expansion sites was actually one of the later ones, Habuba Kabiri (Strommenger 1980; Sürenhagen 1986; Oates 1993). The settlement, a village of traders, was made on an unoccupied site, and the entire population, estimated to have reached at least six to eight thousand (Strommenger 1980), was Urukian. The settlement was carefully planned (Strommenger 1980: figs 1, 13, 28, taf. C). The street network, together with a drainage system of terracotta pipes in ditches, was laid out first, and then houses and other buildings were constructed. Most of the houses were built in a standardized courtyard plan (Strommenger 1980 Figs. 15, 16). A group of buildings of basically the same type as the private houses, but more monumental and elaborate, with massive walls and interior wall niches, were found at the southern end of the site and apparently provided the administrative center of the town.

No agricultural tools were found at Habuba, and the discovery of quantities of large storage jars of the typical local Amuq F Ware, some containing the remains of grain, suggests that the inhabitants acquired their food supplies from local farmers (Strommenger 1980: Figs. 27, 33; Sürenhagen 1986, 31; contra Schwartz 2001: 258–9).

Fragments of letharge, the result of the cupellation of silver, have been found in several locations in the northeast quarter of the settlement, dated to ca. 3300 BC (Pernicka, Rehren, and Schmitt-Strecker 1998; Frangipane 1985; 1997a; 1998: 198). The cupellation is judged to have been performed in a professional way but not in metallurgical workshops; hence, it was not a chance product of a metallurgical process, but a deliberate production of silver. It was probably a conventional process brought to Habuba, not developed there. Not very far from Habuba there are two large lead-silver deposits, Bolkardağ in the Taurus and Keban on the Upper Euphrates, and the production of small amounts of silver would have been useful to traders. There is also evidence for silver production and use at Arslantepe (Hess *et al.* 1998: 57–67), and access to such resources is often assumed to have been primary among the motivations for the expansion.

Interactions with the local population appear to have been mainly peaceful, and there is no evidence that the Uruk settlers controlled and exploited the hinterland. Yet fortifications, described as "a system of bastions and gates which would demand careful staffing in time of crisis" (Wright 2001: 143), were constructed after the initial

occupation, as were the walls of the small neighboring site of Sheikh Hassan (Schwartz 2001: 261–2; Boese 1995). They seem unlikely to have been constructed merely for prestige.

In the final period of settlement, the population of Abu Hureya dropped and houses were built farther apart. After ca. 7000 cal BC the site was abandoned, one of many to suffer a similar fate at the time. The excavators attribute the abandonment to the degradation of the land caused by the pressures of the rapidly enlarged population (Moore *et al.* 2000: 522). People seem to have moved to find better conditions.

Jebel Aruda

Jebel Aruda, an anomalous site that also dates to the expansion, was built near Habuba, probably as an ancillary site (van Driel 2002). It was located on a mountain slope at whose summit two large buildings enclosed by a wall were constructed, each with a kitchen area containing ovens. They have been identified as temples (the Red and Grey Temples). Two groups of small buildings (houses?) that may have served as a service area for cult carried out in the temples may indicate the purpose of the settlement. Over expansion and the use of unstable materials seems to have doomed the settlement, which underwent decline and finally burned.

Effects of the Uruk Expansion on Ubaid Settlement in the North

Hacınebi Tepe, an Uruk enclave

In the second phase of occupation at Hacınebi, B2, (3700–3300 BC), the ceramic evidence attests the arrival of Urukians from the south. They occupied the northwest section of the site and lived independently. They used their own Uruk-style, mineral-tempered pottery in a full range of southern forms for food preparation, serving, storage, and transportation. They made their own stone tools, produced their own crops (retaining the use of typical southern baked-clay sickles, rather than adopting the far superior northern type made with flint, a material abundant in the north but lacking in the south), and followed their own food preferences, eating mostly sheep and goat in contrast to the mixed diet of pig, sheep, goat, and cattle of the locals (Stein and Nicola 1996; Stein 1999: 18–20; 2001: 293–8). Evidence based on the use of spindle whorls shows, however, that they retained traditional Anatolian forms in textile production, suggesting that the men acquired wives locally (Stein *et al.* 1997: 138–9).

In their business transactions, both groups also maintained their own traditions. The Urukians used the Mesopotamian system of weights and kept records using cylinders seals, while the local people continuing to use stamp seals (Stein 2001: 19; Pittman 1998). The content of any trade is not known; presumably metals were involved, but what was given is return is evidenced only by bitumen that was imported from a source in either southern Mesopotamia (Hit) or the Keh Luran plain in Iran (Schwartz, Hollander, and Stein 1999). Stein suggests that the bitumen was "either a trade good imported from Mesopotamia (or southwest Iran) or else the packaging within which

some other trade good was transported" (2001: 18). It was also essential for boat building, which was a crucial factor for a riverine settlement, as can be seen in reed boat fragments coated with bitumen found at the site (Schwartz 2002).

Arslantepe – emulation

Arslantepe lay on the fringes of the region primarily affected by the southern migrations, and participation in the Uruk expansion was relatively late. Underpinned by a system of labor exploitation that involved the distribution of rations, the pre-Uruk city had already undergone extensive development. Some private homes evolved into impressive monumental buildings and the more privileged private families acquired the prerogative of representing the whole community, as seen by the use of seals (Frangipane 2003).

Under Uruk influence, Arslantepe continued and even accelerated these developments, apparently driven by emulation rather than by constraint. One sign of this is seen in changes in the ceramics, which came strongly under the influence of Late Uruk taste and technology (Frangipane 2002: 126).

But a more impressive and fundamental change occurred in the organization of the site and especially in its monumental architecture. A complex of four interconnected buildings was built upon the earlier monumental Ubaid building, with various sectors devoted to different functions and arranged on several terraces, including a temple and a complex of storerooms, and areas (archives?) in which discarded sealings were deposited. Frangipane sees it "as one of the oldest examples of a palace-like building" (1998: 198; see also 1997c).

In the Uruk period, metallurgical activity and expertise surged: evidence of smelting activities, usually rare in settlements, was even found in the large courtyard of a house, and debris from metalworking was used in the building of roads and public places, as well as in filling layers for further construction. Silver was also produced (Pernicka, Rehren, and Schmitt-Strecker 1998): of a collection of weapons, including nine sword-like blades, three were decorated with silver inlay. The blades and twelve spearheads demonstrate that metal was now being employed for both warfare and display. Frangipane (1998: 198) attributes the increased activity not to increased demand from the south but rather to the desire of the elite of Arslantepe for luxury goods that would enhance their status – in this case, Uruk influence was a product not of force or even pressure applied by the southerners but of the ambitions of the elite of Arslantepe.

In the late fourth millennium, ceramic finds indicate the presence of Transcaucasus elements in the neighborhood of Arslantepe, and spearheads from both periods show similarities to spearheads in the Transcaucasus. It is possible that itinerant smiths, perhaps from that area, were involved in the diffusion of metallurgical techniques, tools, and weapons (Yakar 2001: 115). The Transcaucasus influence became more marked in the early third millennium. At that time there was a radical change in the ore supply to sulphide ores, which were not present locally and were probably brought from the north and northeast; it has been suggested that, if that were the case, it might indicate the presence at Arslantepe of an early state, in that it was capable of obtaining ore supplies from distant groups of another culture (Palmieri *et al.* 1999: 147; Batiuk and Rothman 2007).

Tell Brak – assimilation

Tell Brak, which had demonstrated complexity and monumental-scale public construction before any significant Uruk intrusion (Emberling *et al.* 1999), as discussed above, allows the identification of "the gradual way in which Uruk elements penetrated the local contexts until total cultural assimilation was achieved at the end of the 4th millennium" (Frangipane 2002: 126; see also Oates and Oates 1993). At the end of the Late Uruk period, the site appears to have been abandoned, deliberately leveled by its occupants (Oates and Oates 1997: 195; Matthews 2003).

Gawra and Tell Hamoukar – destruction

The effect of the Uruk expansion was quite different at Gawra and Tell Hamoukar. In ca. 3400 Gawra was destroyed by an incursion from the south and began a 600–700 year hiatus. Similarly, in mid-fourth millennium, Hamoukar fell victim to a devastating attack. The large building was burned in an intense fire, with 2,300 sling bullets found in the remains of the collapsed walls adding to the evidence for the ferocity of the attack. A dozen graves were also found in the wreckage, possibly those of victims of the battle. Numerous copper tools found in the ruins suggest that by the time the city was destroyed, copper had started to replace obsidian as the key raw material for tools, and Hamoukar had developed from an obsidian-processing center into a copper-processing and exporting center. All this would have made it particularly attractive to southerners interested in controlling the resources of the north. With the destruction of the city, new occupants moved in, bringing southern artifacts and their own domestic lifestyle (as indicated by the pottery). It seems that the Uruk expansion was not always a matter of peaceful trade relationships in which southerners lived side by side with the locals. Nor were the northern settlements part of a backward "periphery" in contrast to a developed south.

Debate about the Uruk Expansion

Much of the debate about the Uruk expansion has centered on ideological issues, especially Algaze's use of Wallerstein's World Systems model, in which the relationship between the Uruk settlers and the local inhabitants was seen as one in which the more highly developed Uruk "colonists" dominated the less-developed local population. Since increasing information from on-going excavations has revealed that the northern communities were highly developed, and that generally there is little evidence for coercion, scholars have increasingly favored less imperialistic interpretations, such as that of an autonomous trade diaspora suggested by Stein (2002a) for Hacınebi. The highly varied conditions of the communities included under the umbrella of the term "Uruk expansion" were recognized even in Algaze's original model, and they suggest that each northern community was structured by its own unique local situation, and that the Uruk leaders who established specific settlements would themselves have had a high degree of autonomy in coping with local conditions. What at first appeared as a neat hierarchical scheme may well have been the result of a random set of circumstances.

The primary aim of the Uruk expansion is also in dispute. While not everyone agrees that it was resource acquisition (Schwartz 2001: 258–9), there is considerable evidence, both general and specific, to support that supposition. The location of the various Uruk settlements on trade routes, and the availability in the north of crucial materials lacking in the south, such as metals, semiprecious stones, and timber, have long been noted. At one of these sites, Hacınebi, copper ores have been found from the Ergani area, 200 kilometers to the north, which were presumably transported down the Euphrates by raft for processing (Stein 2001). Another site, Arslantepe, was a major center of metalworking in the north. The quantities of timber and copper sent back to Mesopotamia can be seen in the use of these materials in buildings there. Margueron (1992: 87–90; Algaze 2001: 208) estimates that the Limestone Temple at Uruk would, alone, have required between 3,000 and 6,000 meters of roofing timbers when it was built in the Late Uruk period.

Contacts With Egypt via the Uruk Settlements?

A much debated question is whether the area of the Uruk expansion served as a transit area for the transmission of cultural artifacts from Mesopotamia to Egypt by sea. There seems to be no doubt that Egypt did receive cultural imports from Mesopotamia by some means (Moorey 1990; Joffe 2000; Wilkinson 2002: 244). Among these imports certain distinctive art motifs that played an important role in the development of Egyptian iconography have long been recognized: the winged griffin, the serpent-necked feline, entwined snakes framing rosettes, the Master of Animals, and the portrayal of animals in human attitudes (Teissier 1987). These early influences were sporadic and only superficially incorporated by the Egyptians, who adapted and reinterpreted them to express their own ideological and organizational patterns. They could all have been transmitted to Egypt by only a handful of seals or other small objects.[3] No reciprocal influence of Egypt upon Mesopotamia has been detected (Philip 2002: 225). Only a few stray indications of long-range foreign contacts have been found in the Uruk settlements themselves: a pot of central Anatolian origin; a ceramic handle, probably from Palestine; and a fragment of a type of black-incised pottery also found in Egypt in Naqada IIc contexts (Sürenhagen 1986, 22 and figs 22, 23, 24). Yet it is notable that two of these suggest long-distance contact by sea.

Moreover, there is evidence for activity of the Egyptian Delta port of Buto (Tell Fara'in) at this time. Identified as Buto in 1888 by Petrie, the mounds were not excavated until the 1960s, when interest centered on the Late Period, Ptolemaic, and Roman remains. The Predynastic activities of the port were only revealed in the 1980s with excavations by the German Institute of Archaeology in Cairo under the direction of Thomas von der Way; they were continued under the direction of Dina Faltings and, more recently, Ulrich Hartung (Faltings 1998a; 1998b). In 1992, Stager suggested that new data indicated that a Mesopotamian mercantile enclave at Buto was established during the Uruk IV/V period, ca. 3300–3200, and that it was probably linked directly by sea to an unknown EB I port in Syro-Cilicia which transshipped goods from the Uruk trading diaspora. The sea route was probably complementary with the inland caravan route.

Interest in Buto increased dramatically for a time, based predominantly on the hypotheses of von der Way. Von der Way first suggested that small cone-type objects found at the Delta port of Buto (Naqada II, ca. 3500) were clay "nails," of the type used in Uruk buildings to create cone mosaics, and that craftsmen from the Uruk settlements may have worked as expert advisers in building projects in Buto, or that workers from Buto acquired the necessary skills from visiting the Uruk area (1987, 256–7; 1992; 1997). These suggestions have subsequently been generally rejected, however. Similar objects have been found at a number of levels at Buto, as well as at sites elsewhere in Egypt, including some sites at which there were no monumental brick buildings available for decoration, but only slight structures of wood and reed. This evidence for widespread use also suggests local developments (Joffe 2000: Faltings and Köhler 1996; Faltings 1998a; Watrin 2004: 52–5); moreover, the "nails" may have served a variety of uses, possibly even the production of salt (Wilde and Behnert 2002).

Another suggested reflection of the involvement of the Uruk settlements by way of Buto was the presence of apparent imitations of Amuq F spiral reserve slip bowls at Buto I–II (Köhler 1992; 1998: 37–9; von der Way 1993: 34–5). Again, the hypothesis failed, for the discovery of complete vessels of this type resulted in their reinterpretation as deriving from southern Levant Chalcolithic culture (Faltings 1998a: 366–71; Watrin 2004: 55–6).

During the later phase of the Uruk expansion, Egyptian borrowing and reinterpretation of Mesopotamian motifs operated on a grander scale, involving the use of elements of Mesopotamian temple and civic architecture, especially niched architecture, in First and Second Dynasty tombs (Naqada IIIb). Recessed niches are characteristic of temple architecture in southern Mesopotamia, found at Uruk/Warka and other southern Mesopotamian sites (Postgate 1992: 101, 110, 112, 117), and in the north as well, at Habuba Kabira South and Tell Brak. Von der Way (1992) suggested that workmen from Mesopotamia had been responsible for the architectural innovation. The idea could, however, have been transmitted to Egypt by way of seal impressions portraying buildings, models, sketches, or even descriptions, or by Egyptians workers visiting or employed in Mesopotamia. In Egypt, architectural niches were translated into expressions of Egyptian royal and funerary ideologies in an advertisement of growing royal power.

The idea that Egypt borrowed the Mesopotamian niched facade via the Uruk settlements created a chronological problem before the new School of American Research chronology extended the time period for the Uruk settlement expansion (from ca. 4200 to 3000 BC). The new dating, however, resolves this problem, allowing for an overlap of the Uruk phenomenon and the use of niche facades, which were employed primarily in the First and Second Dynasties (Joffe 2000).

Finds of lapis lazuli in Egypt are especially significant for the tracing of contacts between Egypt and the east. In Naqada IIC, lapis was found in 20 tombs on eight sites between Marmar and Nagada. Finds from across the Naqada III period lessen successively (Bavay 1997: 81–2). The source of the lapis was probably northern Afghanistan (Herrmann 1968), from where it was carried through the Iranian plateau and the Zagros highlands to Mesopotamia. There, it first occurs in a stratified context in the rich tombs of Tell Gawra level X, in which lapis in the form of beads, pendants, and seals was found in abundance along with gold, electrum, and turquoise (see Tobler

1950: 4, 92–7). A few other pieces of lapis have been found at the sites of Nineveh and Arpachiyah, and unworked lumps of lapis have been found at the Uruk expansion site of Jebel Aruda (van Driel and van Driel-Murray 1979: 19–20), while no lapis has been found in southern Uruk sites. Thus it seems probable that the northerners enjoyed a monopoly in the lapis trade, which would probably have required the support of a powerful administration in the south (Herrmann 1968: 29; contra Majidzadeh 1982: 63–6).

Again, this is another hypothesis that has been saved by the revision of the chronology. According to the traditional chronology, if the Uruk colonies were the agents for the transmission of lapis, its discovery in Egypt in Naqada III would be problematic, since the Uruk colonies would no longer have existed at that time; however, the revision of the chronology extends the date of Jebel Aruda to ca. 3000 BC, making it contemporary with the Egyptian transition Naqada IIIc1–IIIc2. With the foundation of the Uruk colonies about four centuries earlier, the dates "roughly match the time period when lapis lazuli is attested in Egypt" (Hendrickx and Bavay 2002: 74–5).

The problem of the gap again

In accounting for contact between the Uruk world and Egypt, the perennial problem of a gap between inland settlements and the coast arises. This is the same problem that is thought to have met the ninth-millennium Mureybetian settlers of Cyprus, although the time difference means that more possibilities for finding interim settlements exist for the later period, and the items transported at that time – gems, seal stones, motifs, ideas – were far smaller and easier to accommodate than the people and animals involved in the PPNB crossing, with even less need of substantial port facilities.

The Uruk settlements could have provided links in the transmission of materials and ideas through their participation in the cultural *oikoumene* of Cilicia, the Amuq Plain, and southwestern Anatolia. The *oikoumene* provided a route by which obsidian from Cappadocian sources reached the Levant, traveling as far south as Jericho from at least the early Neolithic (Cann and Renfrew 1964; Renfrew, Cann, and Dixon 1965: 239; Renfrew, Dixon, and Cann 1966: 39; Renfrew and Dixon 1976; Gopher, Barkai, and Marder 1998). In the Halaf and Ubaid periods, the widespread use of chaff-tempered pottery attests to the continuing cultural connections linking these areas. The DFBW cultural sphere also provided a medium for the transmission of objects and ideas.

For routes between Anatolia, the Uruk north, and the Levantine coast, the Amuq Plain in effect served as the "hinge" (*charnière*) (Forest 1996: 145; Schwartz 2001: 257). It was extensively surveyed and studied by the Braidwoods in the 1950s and 1960s; they found abundant evidence for contacts with Ubaid cultures in the northern Mesopotamia period, although only slight evidence for contacts in the Uruk expansion period: at Tell Judaidah, the Braidwoods found bevel-rimmed bowls and red-slipped pottery (Braidwood and Braidwood 1960: 226–35, 259–75), and a sherd of a Middle Uruk Black-on-Red jar (Wright 2003: 53; Braidwood 1961). Subsequently, Uruk material was found at Hama on the Orontes (Thuesen 1988: 187; Fugmann 1958); and jars "with affinities to Uruk and Jemdet Nasr wares" were found at Tabara al-Akrad (Hood 1951).

Occupied Sites in the "Gap" with Uruk Evidence

The work of the Amuq Valley Regional Project (AVRP) has added significantly to the number of Uruk-related assemblages documented in the Amuq Valley (Yener and Wilkinson 1995–6; Yener 2005). While new political boundaries meant that 24 of the 178 sites originally surveyed by the Braidwoods in Syria could not be revisited by the AVRP team, during the 1995–2002 seasons 180 sites – 126 sites recorded by the Braidwood survey and 54 new ones – were visited.[4] These finds support the contention of Algaze ([1993] 2005) that Uruk-related sites in the Amuq were established by southern Urukians in quest of essential raw materials and high-status materials that were lacking in southern Mesopotamia. Nonetheless, the Uruk-related material is still scattered, and does not reveal the exact nature of Uruk presence (individuals, enclaves?). As for the means of transmission, Wright (2003: 53; 2001: 134–6) argues for the activity of itinerant Uruk potters, who could have carried small objects as a sideline.

Tell Judaidah

One of the largest sites in the Amuq Valley is Tell Judaidah, which was occupied from the Neolithic (6000 BC) (Moore 1978: 307–14).[5] Braidwood's excavations at the site were crucial in establishing the cultural sequence of the Amuq (Braidwood and Braidwood 1960: 300–15; plates 56–74, Figs. 240–5; Braidwood, Burke, and Nachtrieb 1951). Indications suggest that copper was utilized from the earliest Neolithic (Amuq Phase A). Important finds that attest to the development of metallurgy at Tell Judaidah are a crucible with tin-rich copper encrustation and a cache of Amuq G polymetallic figurines outfitted with weapons, helmets, and hair ribbons made of silver/electrum, the oldest tin bronzes thus far discovered in the Near East (ca. 3000 BC) (Yener 1995).

A multifaceted mold exposed by a bulldozer in 1995 initiated rescue operations at the site. Remains of massive walls were dated to roughly Phase F (earlier fourth millennium BC) and Phase G (later fourth millennium and early third millennium BC). Three other substantial walls 1.60 meters wide and 1.50 meters high bordered a room that may have been used as a storage room and was perhaps part of an administrative unit in Phase G. Large quantities of crushed pottery were recovered on the floor of the storage room. New types of storage jars and cooking pot wares distinguished it from the phases above, and a previously unknown type of storage jars, cream colored with a red wash on the interior of the rim and red paint drizzling down the outer surface of the vessel now suggests connections with the coast, where similar pottery was found at Qal'at er-Rus, located on the northern coast of Syria 20 kilometers south of Latakia (where it was called Red Rim Pithoi) Another polymetallic object, a lead/copper pendant, was also found in this room (Philip 2002: 216–17; Ehrich 1939: 14–15, plate VI, fig. IV).[6]

Tell Kurdu

Another important Amuq site is Tell Kurdu, a Chalcolithic (fifth-millennium BC) site in the central part of the Amuq Valley (Akkermans and Schwartz 2003: 162–3).[7] More

than 30 percent of the chipped stone assemblages consist of obsidian, which demonstrates Tell Kurdu's early long-distance contacts (the closest obsidian source is about 300 kilometers away).[8] A large public building more than 10 meters long and 9 meters wide, with a grill structure at the top of the mound, may have been a granary or drying facility, and banks of small rooms suggest storage facilities. Finds of seals and tokens dating to the period Amuq C–E (5700–4300 BC) may provide evidence for administrative procedures.[9] The pottery belongs to the Ubaid tradition, indicating relationships to the Tigris–Euphrates basin sites.

Evidence at Tell Kurdu for a transition from Phase E to Phase F (the Uruk expansion period) is lacking, however, and the excavators suggest that the site was abandoned at the end of Phase E, probably for the other large site in the vicinity, Tell 'Imar al-Jadid al-Sharqi, 2 kilometers to the south, where there are strata dating to Phase F (Yener and Wilkinson 1997).

Oylum Höyük

A significant addition to this growing evidence for settlement in the "gap" between the Uruk settlements and the coast, is Oylum Höyük, halfway between Gaziantep and Aleppo. The area is the continental watershed between the Mediterranean and the Euphrates and is drained by the River Qoueiq; Oylum Höyük forms the ancient center of the region. Its settlement dates from the mid-Chalcolithic, and Amuq E pottery and the remains of a massive terrace wall have been found. After an apparent hiatus in occupation, the site was again in use in the Late Chalcolithic (fifth–fourth millennium). Three late Uruk building levels were discovered from the latest phase of occupation, clearly attesting significant contacts with the Uruk settlements (Özgen *et al.* 1999; Özgen and Helwing 2003).[10]

The existence of evidence for Uruk connections in the area between the Euphrates and the coast need not have involved (and did not involve) the establishment of Uruk settlements, or even enclaves, in that area. The evidence, however, is at least consistent with the occasional presence of itinerant potters or of transient traders/travelers capable of transmitting small items and ideas between Mesopotamia and Egypt.[11] Access from the Amuq to the Mediterranean was provided by the delta of the Orontes river, which flows from the south and makes a sharp bend to the sea in the valley.

Possible Ports on the Route South

Where might a traveler, once he had reached the Amuq, have found a boat and landing places for a long coasting voyage? For a starting point, the most obvious suggestion would be the closest, a still-undiscovered (or long-lost) port in the plain of the Orontes River, which offered the only safe and sheltered anchorage along the North Syrian coast. There is evidence that the delta was occupied from the Paleolithic period through the early Chalcolithic, and the find of an obsidian bladlet at a Neolithic/Early Chalcolithic site (OS 47) demonstrates the early connection between Anatolian obsidian sources and the Orontes area (Yener 2005: 70) and the possibility of further connections to the south by sea. It is useful to recall the arguments that were discussed

above in respect to the PPNB settlement of Cyprus: that formal ports were not necessary for the small craft that would have been used in the fourth millennium, that there might have been pastoral nomads in the area who were able to give some navigational advice, and that sea incursions may have wiped out some coastal settlements.

Ras Shamra

At Ras Shamra in the last quarter of the sixth to the third quarter of the fifth millennium BC, a number of cultural innovations were introduced from the north: buildings with wooden posts, flaked flint axes, use of leopard motives, craftwork in cornelian and obsidian, and bear hunting (de Contenson 1992: 1: 199–201). A period of decline and isolation has been postulated for Ras Shamra during the Uruk period, based on the apparent absence at the site of characteristic Amuq pottery (Curvers 1989: 174). This conclusion is now disputed, however, because it fails to take into account the increasing evidence for the existence of a local fourth millennium coastal assemblage linking the site with Byblos and the Palestinian littoral (Philip 2002: 216; Cecchini and Mazzoni 1998: 23). De Contenson reported links in the first half of the millennium between Ras Shamra Level IIIB and the Amuq consisting in the presence in Ras Sharmra of Late Ubaid painted pottery, the introduction of copper metallurgy (1965: 39), and improvements in architecture in the form of stone houses with several rooms, some of which were paved (1992: 1: 179–81). The discovery of a Byblos seal impression in Ras Shamra in this level (de Contenson, 1970a, 13, Fig. 10; 1970b, 19, Fig. 15),[12] also supports the suggestion that Ras Shamra formed a link in a traditional coastal sea trade route.

Tabbat al-Hammam

Tabbat al-Hammam was another coastal site that left some archaeological evidence. Although only a small part of the site has been investigated, there is evidence that it shared in the widespread DFBW assemblage, which appeared also at the Cilician coastal sites of Mersin and Tarsus, while it shared a chipped-stone tradition with Byblos and the Amuq (Hole 1959; Braidwood and Braidwood 1940).

Tell Sukas

More evidence for the existence of a coastal ceramic assemblage in the late fourth millennium comes from the coastal site of Tell Sukas. Although only a small sounding reached the fourth-millennium level, fragments of Red-Rim pithoi and burnished red-slip ware were found, similar to finds at Qal'at er-Rus, Megiddo, and Judaidah (Oldenburg 1991: 14–15, 18–21; Philip 2002: 217; Joffe 1996). In his review of Oldenburg in 1996, Joffe says,

> The tantalizing material presented in the Sukas report again shows how important coastal Syria was in the fourth and third millennia B.C. Besides Ras Shamra and Ras Ibn Hani, relatively little archaeological work has been carried out in this area in recent years . . . with

third-millennium Syria now a focus of renewed interest and excavation, it may be hoped that a project will be launched at a coastal site to address development of the maritime-based social complexity peculiar to the northern Levant.

Byblos

It is Byblos that has attracted the most attention as a possible harbor for coastal travel, owing to its later importance as a center for Egyptian trading activity (Kantor 1942, 201; Prag 1986; Teissier 1987). In the fifth and fourth millennia a number of seals were produced at Byblos, one of which, decorated with five concentric circles, is similar to a seal found at the site of Herzliya, located on the shore near Tel Aviv, possibly attesting some business activity (Garfinkel, Burian, and Friedman 1992; Garfinkel 2004). The discovery of a possible temple, enclosure wall, and a well in a fourth-millennium context suggests that Byblos was a long-established community by that time. More direct evidence for early activity may lie in the impression of an Iranian seal that Teissier (1987: 46) argued had reached Byblos by the Uruk settlement route.

On the other hand, Philip (2002) denies that Byblos played a significant role in the transmission of Uruk traits to Egypt in the fourth millennium, although he allows that it played a role in coastal transmission of materials to the Nile Delta from northern Syria and Anatolia – silver, copper, the use of the potter's wheel, and prismatic blades – and that this coastal communication was increasing. He holds that Byblos and other coastal sites had not yet reached a stage of complexity that could make use of the more sophisticated social and technological advances of the Uruk cities (mass production, the presence of an elite). Yet the Byblites were using seals from the fifth millennium, which suggests at least that they had a sophisticated system of tracking ownership. Moreover, in the early third millennium Byblos had reached a stage of sophistication that enabled it to adopt many elements of an elite – even royal – lifestyle from Egypt.

South from Byblos

South from Byblos the evidence for anchorage points becomes more fragmentary, but is increasing. In the seventh-sixth millennium, there is indirect evidence for the use of small boats farther south along the Canaanite coast for fishing at Atlit-Yam (see Chapter 2). These arguably represent rather widespread small-boat usage along the coast (Marcus 2002; Sharvit *et al.* 2002; Galili *et al.* 1993),[13] but such small boats were certainly not capable of engaging in long-distance travel.

At that point, Atlit-Yam was submerged, but much later it figures again in the story of coastal travel. Recently, in the North Atlit bay, EB I (ca. 3500 BC) finds were made at a depth of 11–12 meters below current sea levels. They consisted of an intact ovoid jar of Nile clay and its contents – 18 shells of *Aspatharia rubens*, a freshwater mollusk found only in the Nile – lying both within and outside the jar (Sharvit *et al.* 2002; proposed by Gophna and Liphschitz 1996; see also Gophna 2002). The mollusks had apparently been placed in the jar alive or in a preserved state, probably in order to supply food for the crew for a period of at least a few weeks, as well as serving as fish bait. The jar appears to have been carried by an Egyptian crew and washed overboard while the boat was

making landfall, or foundered while anchored nearby. The Egyptian identity of this boat, and its capability for long-distance travel are thus confirmed.

Finds in the Ashkelon trough from EB IA now confirm the existence of trade between southern Canaan, Lebanon, and Egypt at this date, much earlier than had previously been thought. Remains in the northwestern part of Tell Ashkelon have for the first time revealed the existence of occupation at that site in the Early Bronze Age (Stager 1993: 105–6), and recent rescue excavations have revealed three EB IA sites in addition to that of Tell Ashkelon (Gophna and Liphschitz 1996). The most important finds were fragments of wood from Cedar of Lebanon and Turkey Oak, both trees native to Lebanon that never grew in Israel. Since there were no buildings in the area large enough to require timber rafters, it is suggested that these pieces are suggested are the remnant of small precious objects. They confirm the existence of a sea route from Byblos.

Another coastal find that confirms Egyptian presence on the coast was made at Taur Ikhbeineh in the Gaza, about 30 kilometers south of the Ashkelon trough. There at the EB IA settlement (3500–3350 BC) a fragment of a cup was found that dates from the Uruk expansion period and has parallels with ware from Amuq F (Oren and Yekutieli 1992: 369–70). Watrin (2004: 57) dates this to around 3500 BC. Taur Ikhbeineh has yielded a rich collection of Egyptian artifacts, including a ceramic sherd with boat motif dated to the Egyptian period Naqada IIc, suggesting that Taur Ikhneineh served as a key site in Egypto-Canaan maritime relationships (Braidwood 1960, Fig. 180.14; Oren and Yekutieli 1992: 369–71, Fig. 8.12). The boat partially portrayed is a typical Egyptian sickle-shaped craft, believed to have been among the earliest boats built with planks (Vinson 1990: 14).

Still another instance of objects traveling south, although somewhat inland and thus not necessarily by boat, has been found in a cemetery at Ain Assawir, at the western end of the Megiddo Pass in Israel. A number of cave tombs of the Early Bronze period contained, in addition to the local pottery, a few imported Egyptian objects, as well as two ceramic vessels that originated in the region of the Upper Euphrates, Tigris, and Habur regions as attested by clay analysis. One, a goblet-type vessel, has parallels at Arslantepe, the other, a simple bottle, has parallels in the Orontes valley, Amuq G period, at Hama, and, farther east, at Tepe Gawra, and appears to be a generic type associated with large regions in eastern Anatolia, northern Syria, and northern Mesopotamia (Yannai and Braun 2001). Whether these vessels traveled at least part of the way by a sea route, is impossible to tell.

Thus, there is now evidence supporting the existence of maritime trade along the Levantine coast, linking the Uruk with Egypt, during the period of the Uruk settlements, and involving a chain of transactions between individual networks – the Uruk settlements, the Amuq Plain network, and Levantine coastal communities. The ultimate destination of some of these voyages would have been the Delta port of Buto, but people and objects could have been offloaded at interim stops along the way.

Boats

The transition from small boats used for short hauls by both Levantines and Egyptians to large ships for the long-distance transport of bulk cargoes cannot be traced in the

archaeological evidence, nor can we be sure that the first large sea-going boats were built by the Egyptians. The fact that the boats that made the run to Byblos were later called "Byblos boats," gives no information about the origin of the boats and may not have meant anything more than, "the type of boat that make the Byblos run."

Other factors make it likely that it was Egyptians who took the lead. One is the find of Egyptian mollusks in a jar of Egyptian clay in North Atlit bay, provisions for a long voyage by an Egyptian crew. Another is the portrayal of an early plank-built boat on the pottery fragment from Taur Ikhbeineh.

In most discussions of the use of the sail in the Mediterranean, much emphasis is put upon the conditions in the Nile that naturally favored it – the predominant wind blowing from the north would have carried sailing boats upstream, while the northward-flowing current would have propelled them downstream. In this way, boats could travel relatively unhindered from the island of Elephantine at the First Cataract, on the border with Nubia, to the Delta and the Mediterranean coast on the north (Wengrow 2006: 33). Nevertheless, while the concept is valid, the reality of the river was more challenging (Graham 2005), and towing was still used in the time of Herodotus:

> These boats cannot sail up the river unless there be a very fresh wind blowing, but are towed from the shore: down-stream however they travel as follows: – they have a door-shaped crate made of tamarisk wood and reed mats sewn together, and also a stone of about two talents weight bored with a hole; and of these the boatman lets the crate float on in front of the boat, fastened with a rope, and the stone drags behind by another rope. The crate then, as the force of the stream presses upon it, goes on swiftly and draws on the *baris* (for so these boats are called), while the stone dragging after it behind and sunk deep in the water keeps its course straight. (Herodotus, *Histories* II. 96, tr. G.C. Macaulay)

There is indirect evidence for the use of small boats along the Canaanite coast for fishing at Atlit-Yam by the seventh–sixth millennium, and by the fourth millennium items were carried along the coast by boat, locally or in short-haul, down-the-line trade (Marcus 2002; Sharvit *et al.* 2002). While some of these boats may possibly have been Egyptian (Egyptians were present in the area and involved with trade), most were probably Canaanite.

A big leap in the evidence for the development of Egyptian boats was the discovery of boats buried as funerary monuments for pharaohs, and also in some cases for high officials, which have provided valuable evidence about Egyptian boats and their construction (Ward 2003, 2006; O'Connor and Adams 2001; O'Connor 1991). The intended function of these boats is not known: were they intended as solar boats, to carry the deceased across the heavens like the sun god in the afterlife, or, like the furniture, food supplies, and servants put into the tomb, were they provided for his use in more prosaic travel? Whatever the intended use, from the anthropological point of view, the practice of burying boats in graves of rulers and officials signals the very high value put upon the possession of a boat, which functioned as a sign of control over the acquisition of distant resources and therefore as a marker of elite status (Helms 1993). Ward (2006: 125–6), in fact, argues that boats as prestige grave goods were an important factor in the transformation of Egypt from a collection of chiefdoms under a single ruler into a state.

Of these funerary boats, two found buried beside the pyramid of the Pharaoh Khufu at Giza (2550 BC), are well known; one, 43 meters long and built primarily of imported cedar, has been restored and is on display (Jenkins 1980). Boat burials at tombs of high officials were found just south of Cairo, at Saqqara,[14] and of lesser persons at nearby Helwan,[15] but they were poorly preserved and incompletely recorded.

Recently, even earlier boat burials – fourteen First Dynasty boats, approximately 18 meters in length – have been found buried in pits at Abydos near the funerary enclosure of Khasekhemwy, the last king of the Second Dynasty (Ward 2006; 2003; O'Connor and Adams 2001). The Abydos boats are actually several centuries earlier than Khasekhemwy, who ruled until 2650 BC, and were perhaps intended for an earlier dynastic ruler, perhaps Aha of the First Dynasty; consequently, they are now dated to ca. 2920–2770.[16] In her study of the construction of one of the Abydos boats, Cheryl Ward found that they were built of the short timbers of local woods sewn together according to a wooden-boat building tradition begun in mid-fourth millennium that was intended to facilitate their dismantlement and reassembly.[17] Since burial sites were at some distance from the river – the boat grave at Abydos is located about thirteen kilometers from the Nile – building practices were devised that made possible the dismantling and reassembling of boats to enable their eventual use in burials, and, as Ward demonstrates, these building practices became traditional lore, passed on through the training of new boat builders. The same procedure was used later to transport boats for travel on the Red Sea.

Egyptian Expansion Northward into Canaan

Meanwhile, as the Mesopotamians moved northward in the Uruk expansion, Egypt was carrying out a roughly parallel program of northward expansion, by which it eventually became a major player in Levantine maritime travel. In this northward movement, competing local leaders in Upper Egypt (principally Naqada, Abydos, Hierakonpolis) gradually moved northward, eventually occupying lower Egypt and passing over into southern Canaan, in a movement that, in the end, culminated in the consolidation of the Egyptian state (T.A.H. Wilkinson 1999: 36–41; Watrin 1998; de Miroschedji 1992).

Watrin (1998) has distinguished four phases of the interaction between Egypt and Canaan in the fourth millennium as it increased its sphere and became increasingly organized (similarly, de Miroschedji 2002). During Watrin's first period, 3900–3650 BC (Naqada Ia–b in Egyptian chronological terms),[18] exchange between Egypt and Palestine is characterized by "middleman trading," with abundant Palestinian pottery found at the Delta port of Buto (30 percent of assemblage, mostly kitchenware locally produced), where Palestinian middlemen were established, while at the inland trading center of Maadi, imports were rare. The impetus at this stage seems to have been supplied by Palestinians, who imported ivory, gold, electrum, carnelian, and alabaster with which their craftsmen made objects for the local elite. Some of these materials came from Egypt, but other possible sources were Anatolia and Iran – the only certain imports from Egypt were pectoral fin spikes of Nile catfish and *aspatharia* shells from the Nile. Fragments of wood from Cedar of Lebanon found at Maadi (Kroll 1989: 76)

and Egyptian ceramics found on the coastal plain of North Sinai also suggest some sea trade at this time from Byblos (Prag 1986: 59–71; Moorey 1990: 62–9; Watrin 1998), which could have been an transshipment point for some of the exotic materials coming from further afield.

The second period, 3650–3400 BC (Naqada Ic to early IIc), Watrin (1998) characterized as "dual access trading," with small groups of traders from each region settled in the other region. At Maadi, a great diversity of Palestinian goods was imported, including ceramic jars (oil); large numbers of Palestinian-type tools were also found, probably made by Palestinians resident in the village. A vital factor in the economy of the period is the beginning of copper working in Egypt, apparently introduced by Palestinian metallurgists and using copper smelted from Palestinian ore, the source of which was the Timna valley in the Negev (now in southern Israel),[19] and the Wadi Faynan (southern Jordan).[20] Most of the traffic must have been by land caravans using asses; their use is attested by finds of large adult domesticated animals at Maadi. On the Palestinian side, exchanges were carried out through the oasis of 'En Besor, where Maadian materials, including locally made Egyptian ceramics, imply the presence of resident Egyptians. The trips may have been carried out in stages, with segments perhaps under the control of itinerant eastern traders, who may have temporarily settled at Maadi, at least during the annual innundations. The domestication of the ass greatly facilitated land trade, but small boats were used for maritime transport.

In the period 3400–3150 BC (late Naqada IIc–d and Naqada IIIa1–a2; Canaan Early/Middle EB IB), characterized as "emissary trading," the Maadi culture disappeared, and the Naqada culture expanded in the Delta, spilling over into southern Palestine. Egyptians continued to settle in Palestine, but Palestinians were no longer resident in Egypt. Exchanges were carried out on a wider scale; large ceramic containers were imported to the Delta and Middle and Upper Egypt: at the royal Cemetery U at Abydos hundreds of Canaanite wine jarswere found in the tombs of leaders of Dynasties 0 and 00, in some cases as many as 700 in a single burial (Hendrickx and Bavay 2002). Egyptian products were found at numerous Palestinian sites, especially Tel 'Erani C, an exchange center. Despite the fall of Maadi, business proceeded as usual, as suggested by a ceramic piece with boat motif dated to Naqada IIc found at the Palestinian site of Taur Ikhbeineh II (see Figure 3.1) (Oren and Yekutieli 1992: 369–70, Fig. 8.12). In effect, this phase was the final step before the outright Egyptian colonization of Canaan in the next period.

In the last, or "colonial" phase (3150–3000 BC, Naqada IIIb and Dynasty 0; and Late EB I in Canaan) changes signal the emergence and growing imperialism of the Eyptian state. There is evidence for Egyptian presence at more than 20 sites (Brandl 1992; Hartung 1994), with tools of Egyptian type, buildings following Egyptian architectural methods, and locally made seal impression. Jars bearing *serekhs*, the king's device, provide graphic evidence of the Naqadian king's influence and the presence of Egyptian administration in Canaan. The interest of the Egyptian rulers was in obtaining resources (wine, bitumen, olive oil), which were widely distributed throughout Egypt along the Nile axis and fueled the expansion of the Egyptian economy. Some Canaanite sites were almost exclusively inhabited by Egyptians (notably the oasis site of 'En Besor, a control point for water, through which all goods traveling south had to pass), and Egyptians

introduced architectural techniques to Canaan – buildings without stone foundations using Egyptian type bricks.

A New Era of Maritime Interaction

This boat-building capacity gave the Egyptians – or at least the Pharaoh – not only a passage to the afterlife; they also created the possibility of direct access to resources in Lebanon. Their application to this practical purpose may be linked to the rather sudden cessation, ca. 3000 BC, of the Egyptian inland trade via south Canaan that depending upon Canaanite sea-going middlemen (*Contra* de Miroschedji 2002). With the beginning of the third millennium a new era of intense maritime interaction began, the era of long-distance exchange by large, probably mostly Egyptian, boats.

Notes

1 Metallurgy and magic: Budd & Taylor (1995); Colburn (2008) identified the elite in Mochlos as craftsmen and traders, see Chapter 4.
2 See http://oi.uchicago.edu/research/projects/ham (accessed March 1, 2011). For information on early warfare and urban development, see http://chronicle.uchicago.edu/070118/hamoukar.shtml.
3 There was, as yet, no transport of large cedar logs from Lebanon to Egypt (Ben-Tor 1991: 4).
4 See http://ancientneareast.tripod.com/Amuq_Valley.html
5 See http://oi.uchicago.edu/research/projects/amu/judaidah.html (accessed March 1, 2011).
6 See http://oi.uchicago.edu/research/pubs/ar/95-96/amuq.html (accessed March 2, 2011).
7 See http://www.nit-istanbul.org/kurdu/ubaid%20levels.htm (accessed March 2, 2011).
8 http://www.nit-istanbul.org/kurdu/2002%20season.pdf (accessed March 2, 2011).
9 http://www.nit-istanbul.org/kurdu/Newsletter%202003.pdf and http://oi.uchicago.edu/research/pubs/ar/98-99/amuq.html (both accessed March 2, 2011).
10 See http://www.dainst.org/index_3012_en.html (accessed March 2, 2011).
11 Schwartz (2001: 257–8) objected that the paucity of Uruk-related material in western Syria, which consists primarily of beveled-rim bowls "in select sites, probably important centers with interregional contacts," means that, "it seems unlikely that the main function of the Habuba enclave was to provide a link to an important western route." In a sense, however, Schwartz is attacking a straw man. Few would argue that it was the "main function," intended by those who established Habuba, but it was certainly a possible result, given the increasing evidence for cultural connections with Cilicia and the Amuq.
12 Algaze ([1993] 2005: 73 and Fig. 36d) reports an Uruk seal depicting "a row of horned animals with ladderlike motifs," from the antiquities market, allegedly excavated at Ras Shamra.
13 http://www.antiquities.org.il/article_Item_eng.asp?sec_id=14&subj_id=139 (accessed November 6, 2010).
14 http://xoomer.alice.it/francescoraf/hesyra/Saqqara.htm.
15 http://xoomer.alice.it/francescoraf/hesyra/helwan.htm.
16 Pierce: http://www.abc.se/~pa/mar/abydos.htm (accessed April 3, 2000).

17 Ward further suggests that they were built for the Red Sea trade and were intended to be carried overland to that coast and then reassembled, citing excavations at Mersa Gawasis that have revealed inscribed shrines of non-local limestone anchors, broken copper chisels, and wood fragments bearing mortises of identical dimensions to those she found used in the Abydos boat. These finds, however, date to the late Old Kingdom or First Intermediate Period at the earliest, as do the limestone anchor fragments found in a rock shelter (Sayed 1977, Sayed 1978, http://www.archaeogate.org/egittologia/article.php?id=182 (accessed April 30, 2007)). K.A. Bard and R. Fattovich (2003–4) propose that use in the late fourth millennium is suggested by the surface find of a small rectangular palette similar to palettes of Dynasty 0 and the First Dynasty. The hypothesis that the Red Sea route was in use at this early date is generally now rejected (Moorey 1990; Joffe 2000; Wilkinson 2002; Philip 2002).

18 In Palestine, the period is called Late Chalcolithic–EB I, Early EB I, or EB IA.

19 http://www.jewishvirtuallibrary.org/jsource/Archaeology/timna.html (accessed March 2, 2011).

20 http://www.cbrl.org.uk/wadi_faynan.html (accessed May 24, 2011).

Chapter 5
The Third Millennium

State formation, augmented by a rise in long-distance maritime trade, marked the early third millennium, only to be succeeded, before the end of the millennium, by dramatic episodes of centralized state collapse. In Egypt, the concentration of the pharaoh's power reached its peak in the Old Kingdom, only to disintegrate in the First Intermediate Period; in Mesopotamia, the first great empire, Akkad, rose, extended beyond its capabilities, and fell; in the Aegean, Anatolia, and the Levantine coast, a vast trading network centered on Troy, the Anatolian Trading Network (ATN), ended in numerous destructions, including that of Troy II. In Syria, the growth of small trading states, most notably Ebla, ended in destruction and urban collapse. In Crete, the first palaces developed and were destroyed. And in the midst of all this, at a time still disputed, the volcano on the island of Thera, north of Crete, erupted, destroying the city of Akrotiri, and spreading lava dust and pumice across parts of the eastern Mediterranean, a dramatic event, but without apparent long-term effect on most countries. Clearly, not all of these collapses and catastrophes happened at exactly the same time, or for the same reason, but they do present an interesting pattern, fitting Joyce Marcus's (1998) Dynamic Model of state contraction and expansion.

Egypt

In about 3100 BC, after considerable struggle, the political entities of Upper and Lower Egypt were united as one kingdom under a single ruler, the pharaoh, in what came to be called the Old Kingdom. To hold the newly united country together, the new rulers relied heavily on religion, enveloping themselves in the paraphernalia of divinity, and showing their power by their ability to obtain luxuries from afar.

From their earliest days, the Egyptians had lived from the Nile, at first using small boats for fishing and travel, and later developing large river boats capable of carrying extensive cargoes. But their riverboats were too fragile to use in the rougher seas of the

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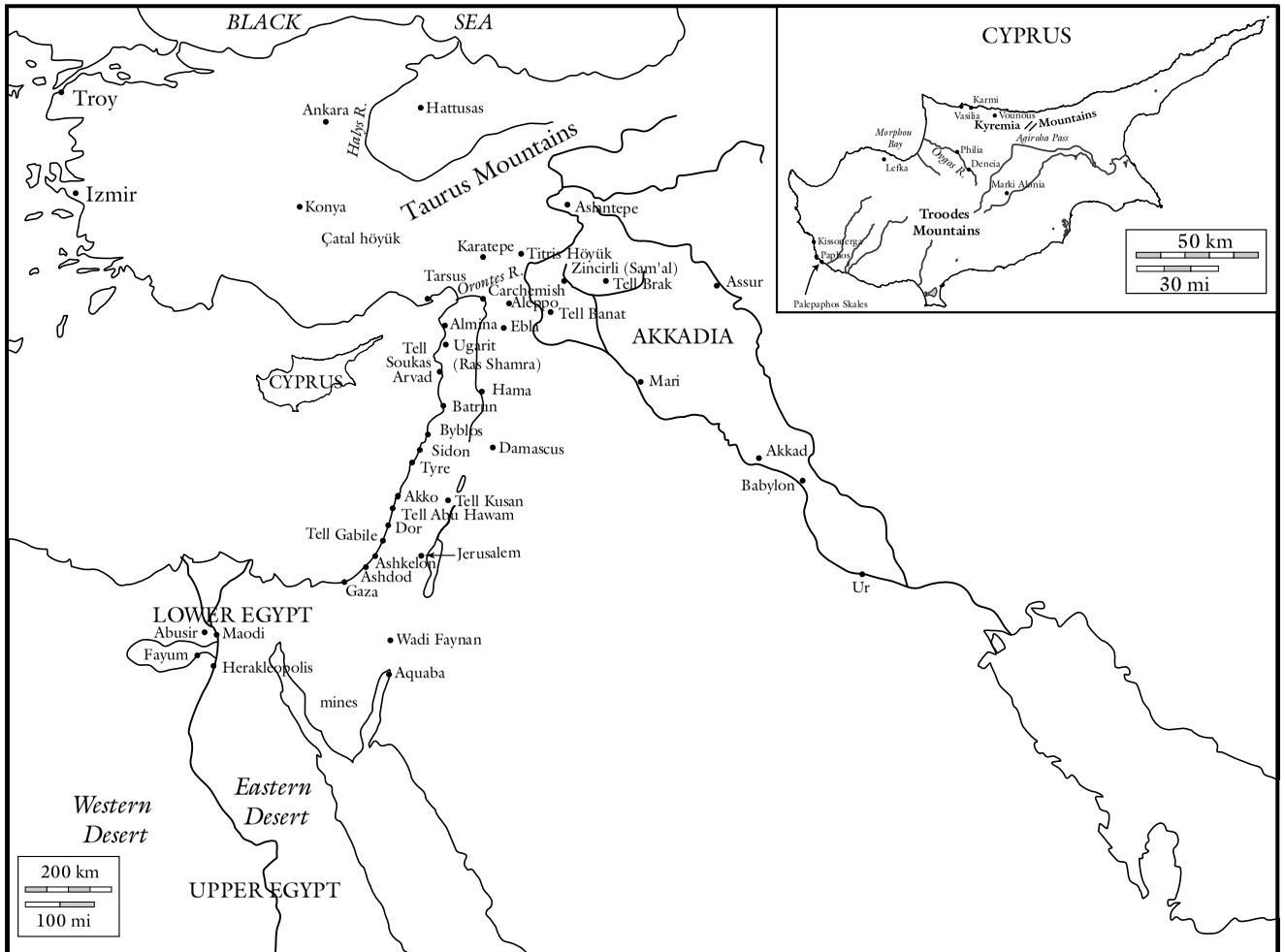


Map 5.1 The Eastern Mediterranean in the Early Bronze Age.

Mediterranean. For connections with the Levant, source of many status-conferring luxuries, they had depended on the port-hopping of small Levantine boats and overland trade by donkey caravans. The first evidence of actual sea-going Egyptian ships appears on a relief on the Sahure pyramid at Abusir, dated to about 2450 BC, which portrays a ship with a hogging truss, a stout line stretched from one end of the boat to the other that passed over a raised post amidships where it was tightened to prevent the ends of the boat from sagging; rope netting was also sometimes applied as a further means of keeping the boat together (Casson 1994: fig. 17; 1991: fig. 3; 1971: 20, fig. 17; Landström 1970: 63–5, figs 187, 191; Prehn 2002–3: fig. 33).

This sea-going ability meant a radical shift from Egyptian reliance on Caananite middlemen to direct maritime connections with the northern Levantine coast (Ben-Tor 1991; Wengrow 2006: 157–8). To the practical imports that had first characterized trade with south Canaan – wine, olives and olive oil, bitumen, copper – were added the exotic products of more northern regions. Cedar timbers from the Lebanon that were resistant to insects and decay, and that were strong and far longer than local woods, enabled the construction of large temples as well as boats to transport more timber. Fragrant resins from Lebanon and the east were prized for personal use and became increasingly essential for funerary cult. Silver from the Taurus provided a storable and convertible form of wealth. Lapis lazuli, carnelian, and turquoise from Afghanistan and beyond enhanced the status of their owners. To provide such exotic imports was vital to the ruler of a newly unified Egyptian state seeking to establish his power: "the king as accumulator becomes the fountainhead of society's prosperity, and the act of acquisition in itself becomes a mark of exceptionality, exclusivity, and ability to control and allows the cultivation of a kingly image" (Helms 1993: 165).

The Levant

Byblos

The Levantine coast ports were naturally enriched by the Egypt trade, and in the third millennium a number of these settlements developed into rich city-states, most notably Byblos. The interest of their elite in status-confering luxuries from distant places favored increasing contacts with Egypt (Helms 1988), and the Egyptian rulers, who had recently consolidated their own state (I. Shaw 2000: ch. 4), increasingly required resources found in the Levant that would cement their power. The desire of Egypt for the timbers of Lebanon and those imports from the east that could be acquired through Byblos led to the rapid development of a large-scale sea trade with that city (Marfoe 1987; Marcus 2002; Wachsmann 1998: 9–18) in what Leon Marfoe has described as a "spiraling interdependence between timber procurement, ship construction and carrying capacity" (1987: 27). Who were the carriers? Lambrou-Phillipson (1990: 151–2) argues that they were Egyptians, based on the finds of Egyptian-type anchors at ports along the route.

Other essential status markers for Egypt were available closer to home. Gold, a "local" product, came from the Eastern Desert and Nubia. Copper came from the mining sites of Faynan (Hauptmann 1991)[1] and perhaps Timna (Adams 2002: 31),[2]

spurring Egyptian expansion northward (see Chapter 4). At Maadi, copper was worked as well; copper objects were found in unusual numbers even in the Late Chalcolithic, and they continued into the Early Bronze period, with over fifty objects, including ingots. From the southern Levant also came large quantities of the wine and olive oil necessary for the ritual drinking ceremonies of the elite.

A vital instrument of Egyptian unification was the symbolic expression of royal power and status. Some of these status-creating elements were iconic expressions borrowed from Mesopotamia – monumental architecture with niched facades; and the use of motifs of victory, such as the hero standing victorious between two beasts. Traffic in symbolic expression of power went in both directions. From Egypt, symbols of kingship traveled to Byblos imprinted on a large number of Egyptian stone vases in *serekhs* bearing the king's name. Sparks lists 45 such vases, 12 with pharaonic inscriptions, most from the Sixth Dynasty reigns of Pepi I and Pepi II (ca. 2332–2184 BC) (Sparks 2003: appendix). These reflect the general peak in connections between the two areas at this period, although it is unclear whether they were votive offerings made unofficially by Egyptian traders or other visitors to the port or offerings made by Byblite rulers who had received them from the pharaoh's representatives in official diplomatic exchanges (Sparks 2003: 47–8; Bevan 2003). The ruling house of Byblos understood the message and increasingly adopted Egyptian forms, borrowing from the Egyptian ideology of kingship to bolster its own position and authority (Wengrow 2006: 148).

Ebla: OverlandTrade connections

Most of the attraction of Byblos and the other Levantine ports arose from their connections overland to sources of lapis lazuli and other semiprecious stones from Iran and Afghanistan, and perfumes and incense from India and Arabia. Along these routes, settlements grew up at connecting points, creating a dendritic system of supply and resource acquisition. The possibility for this development had been created by increasing populations, urbanization and wealth in Syria, northern Mesopotamia, and the northern Levant that had resulted in part in response to the stimulus of the Uruk Expansion (see Chapter 4). As the number of trade goods passing through these centers increased, and profits were expressed in buildings of monumental, then palatial characteristics (Arslantepe) (Frangipane 1997b), much of the exchange also became "palatial." Centered on shipments of luxury items, and even of bulk goods, it took the form of gifts between rulers, often in the form of dowries that sealed marriage connections or tribute paid to more powerful neighbors. The earliest well-attested example of such a trade center exists in the city of Ebla, in whose remains the earliest extensive collection of civic and royal records has been found.

The discoverers of Ebla (modern Tell Mardikh, 65 kilometers southwest of Aleppo in Syria) were surprised at the time to find a pivotal trading center, with extensive records of commercial and civic transactions, on the route from the Mediterranean coast to the core Mesopotamian city-states and farther east, in a region that had previously been thought to have been at most the territory of nomadic herders (Pettinato 1981: 3; 1991). Ebla, in fact, has subsequently been revealed to have been the center of a commercial "empire," exercising control or influence over a large number of other communities, reaching to Karatepe/Kaneş in Cappadocia in the north, Damascus in

the south, and Assur in the east, as well as to closer neighbors – Carchemish, Mari, Byblos, Hama, Armi (Aleppo?) (see Matthiae 1980: 176, fig. 47; 185–6; Pettinato 1981: 95–109; Cooper 2006a: 63–6). Ebla's control over this widespread network was maintained by a variety of essentially peaceful means: alliances, dynastic marriages, and treaties. Only occasionally did the city resort to force, and when it did, it often used mercenaries (Pettinato 1991: 142–5).

While the oldest textual record of Ebla appears in the period of the Akkad Dynasty, 2350–2150 (Pettinato 1981: 15), archaeologically the EB III levels date to 2700. By 2400 it was a city covering about 24 acres (Matthiae 2003: 165).xcavations have centered on the monumental remains of Palace G (Mardikh IIB1, ca. 2400–2250), but the significance of the site lies not so much in the palace, but in the more than seventeen thousand cuneiform tablets discovered there in the 1970s. These were far earlier than any tablets that had previously been found, and in a language unknown at the time. With the language determined to be a Semitic dialect, the tablets were readable (Pettinato 1981; 1991). They have revealed the workings of a city with a complex economy that developed from an initial basis of agriculture and herding (sheep but also cattle) into a center of manufacturing and trade, focusing on textiles (Pettinato 1981: 202–25). In their accounts of textiles, the tablets record large inventories of carefully specified types and qualities of cloth (wool and linen), even descriptions of individual garments. They include the earliest documents attesting diplomatic marriages anywhere in the cuneiform record, contracted between the royal houses of Ebla, Nagar (Tell Brak), and Kish. The wedding trousseaux included large numbers of special garments for the brides and their attendants, luxurious textiles, as well as valuable jewelry, and, in one case, 42 jars of wine, sent to Nagar (Oates, Oates, and McDonald 2001: 381).

The startlingly large quantities of silver and gold that are recorded as tribute, taxes (which the king himself also paid to the state), gifts, and payments for goods (Pettinato 1981: 166–72), reveal only a portion of the wealth of Ebla. For example, tablets listing 7 tons of silver and 250 pounds of gold record only part of the income in the given year (Pettinato 1991: 68).

The tablets also reveal a sophisticated command of metallurgy, recording the recipes for various alloys of copper and the manipulation of tin to produce the particular qualities required for specific types of objects – hardness in tools, razors, and weapons for use in warfare and fluidity for the casting of vases, statues, and ceremonial weapons (Pettinato 1981: 172–9, fig. 7).

The ruler of Ebla (Sumerian *en*)[3] did not have absolute power in the city, but shared responsibilities with a council of elders. A similar system of corporate governance existed in various forms among many of the settlements in the Northern Euphrates Valley that were under Elba's control or influence (Cooper 2006a). These communities were quite small, in contrast to the massive cities of southern Mesopotamia, such as Uruk, but many possessed monumental temples, large-scale secular buildings, planned domestic neighborhoods, extensive systems of fortification, and evidence of craft specialization. As in Elba, rule in most of these smaller communities, was by a corporate form of power sharing involving a collective group ("elders," "judges"), rather than an all-powerful king. Cooper (2006a: 63–6) suggests that a useful model for this sort of governance might be found in the "Dual-Process Theory" devised by Blanton for

Mesoamerica (Blanton *et al.* 1996). This model differentiates two principal types of power strategies: the "exclusionary," which tends to center power on individual leaders, and the "corporate," in which power is shared between different groups and sectors of society. In the case of third-millennium Elba and its neighbors, the origins of the corporate strategy lay in the tribal structure of their inhabitants, who combined both agrarian and pastoral modes of subsistence, and whose pastoralists managed their herds and the use of grazing land collectively (Fleming 2004: 218; Cooper 2006a: 61). The Burial Mounds at Tell Banat, a site in the Syrian Euphrates area that possessed large-scale "proto-palaces" (buildings that were not quite vast enough to qualify as palaces), was apparently not a city at all, but a funerary site, devoted almost entirely to the dead and to those who served them. The secondary burials at the site, in which the dead were eventually subsumed into the collective group of anonymous "ancestors," have been seen as evidence for a corporate type of social organization (Porter 2002a; 2002b). Porter argues that in these burials the distinctions of life had been wiped away, leaving only the collective ancestors to be honored. He associates this form of burial with the corporate form of governance by a ruler and a group of "elders" found at Elba and common in the area (Porter 2002a; 2002b; Cooper 2006a: 252–3). The corporate model has also been documented in the Mari Archives of the early second millennium BC (Fleming 2004; Cooper 2006a: 62), and it appears later in Phoenician cities (see Chapter 9).

A connection between such governing arrangements and modern democracy was first suggested by Jacobsen (1943), who pointed out evidence that assemblies with judicial powers existed in early second-millennium Assyria and Babylonia and that these assemblies were an old institution that had existed prior to the secular kingship. Relying, however, on Babylonian literary texts, and, in particular, upon the "Epic of Creation," he speculated about the origins of kingship, suggesting that during periods of crisis, these early assemblies elected military leaders who eventually usurped power and ruled as kings. In more general terms, " the wide powers of the citizenry were eroded and replaced by the absolute rule of an individual" (Van De Mieroop 1997: 133) Jacobsen's speculations about the origins of kingship, based as they were on second-millennium literary texts, are not generally accepted today, nor is his pessimistic view about the loss of the power of the collective groups. In fact, there is considerable evidence to support the existence of assemblies with various powers and an increase in that power over time. Thus, the evidence for city residents' power in the first millennium has convinced Van De Mieroop that urban citizens often gained in independence gradually, achieving freedom from taxation, corvée, and military duties, and a guarantee of physical integrity (1997: 135). This occurred because cities in large empires were often able to bargain with rulers successfully: the very extent of the royal territory meant that the ruler needed the support of the urban dwellers (much the same situation occurred in the Greek, Hellenistic, and Roman periods, as rulers strove to control powerful underlings or over-extended territories) (Fleming 2004). But the third-millennium evidence from Elba demonstrates that the voice of urban citizens was heard in that earlier period as well, and that Jacobsen, although relying upon some evidence that most would not use today, seems to have been right in suggesting that "democracy," as the voice of the people, had very early beginnings.

Mesopotamia – Empire Building

Ebla functioned as a node on trade routes serving the independent cities of southern Mesopotamia. But in the twenty-third century BC Sargon of Akkad changed the game, moving to establish control over these routes that carried metals, timber, and semi-precious stones from Anatolia and imports from Egypt. In a series of campaigns he moved west, gaining control of the rich resources of the Cedar Forest (Amanus, or perhaps Lebanon) and the Silver Mountain (the Taurus). He even claimed to have reached the Mediterranean and crossed the waters to "Kuppara" (Crete? or, more probably, Cyprus?). Subjecting the areas he conquered to administrative control, he created the first unambiguous case of empire, the Akkadian empire (Westenholz 1998; Akkermans and Schwartz 2003: 277–82).

In ca. 2250 BC, Sargon, or his grandson Naram-sin (each claimed responsibility) destroyed Ebla, leaving only the ruins of the craft workshops of the Eblaites to be discovered by later excavators.[4] The finds that did survive or could be reconstructed reveal the skills and sophistication of Ebla's craftsmen in the remains of finely worked furniture (Matthiae 1976: 103–4); wood panels decorated with inlaid shell figures of warriors and animals; a lion-headed bird and human-headed bulls (Matthiae 2003: figs 114, 115a–f); and a figurine of a human-headed bull made of steatite and gold foil over a wooden core (fig. 111). A large amount of unworked lapus lazuli was also found, probably destined for Egypt. Evidence for trade or diplomatic relations with Egypt also exists in finds of Egyptian bowls and goblets of diorite and alabaster, including a diorite bowl bearing the name of King Khefren of the Fourth Dynasty (2562–2537 BC) and an alabaster jar lid with the cartouche of Pepi I of the Sixth Dynasty (2342–2292 BC) (Matthiae 2003: fig. 161). These Egyptian objects, however, had probably not been obtained directly from Egypt but via the port of Byblos, where a larger group of inscribed Egyptian stone vessels has been found (Sparks 2003: 47–8).

Naram-Sin was even more ambitious and grandiose than Sargon, reaching the peak of imperial power and designating himself a god and "king of the four quarters." But after years of intensive agricultural production, brutal subjection of the population, and – probably – a drought resulting from climate change, the empire collapsed (Weiss *et al.* 1993; Nüzhet Dalfes, Kukla, and Weiss 1997; Wilkinson 1997). It was soon replaced by another imperialistic but short-lived kingdom, Ur III (2112–2004 BC) (Middle chronology, Zettler and Horne 1998).

Ur III is best known for the overwhelming richness of its earlier Royal Cemetery (Woolley1934; Zettler and Horne 1998; Horne 1998; Rakic 1998), which contained 1,850 intact burials, 660 belonging to the Early Dynasty (2600–2400 BC), and 17 being classified as exceptionally rich.[5] In the richest graves, as many as 73 attendants, most of them women, accompanied the deceased to the grave after drinking poison; both the honoree and the attendants were adorned for the occasion by elaborate and splendid jewelry. The jewelry and other grave gifts show complete mastery of the techniques of jewelry making, including inlays of ivory, shells and different stones, and figures such as the "Ram (actually, goat) in the Thicket,"[6] a bull's head of gold and lapiz lazuli that was attached to the sounding box of the lyre of Queen Puabi,[7] and the

headdress of that queen, adorned with golden leaves so naturalistically portrayed that their species can be identified (Tengberg, Potts, and Francfort 2008).

Troy

From the west, connections to the riches of the east lay through a long chain of trading settlements that had its origins in the city of Troy, the preeminent settlement on the Anatolian coast in the EB I–II period in size and wealth (Korfmann 2001; Ünlüsoy 2006). The strategic location of Troy at the entrance to the Dardanelles gave it a potent source of power in the control of traffic to and from the Black Sea, to exact tolls and to profit by the expenditures of ships' crews waiting for favorable winds and currents to pass through the channel. The coasts of the Black Sea were the source of much mineral wealth. The presence of gold is enshrined in the legend of the Golden Fleece, which may reflect actual practices of placer mining in the eastern Black Sea. Thus, Strabo in the first century BC, tells of the tribe of the Sloanes in the eastern regions of the Black Sea coast: "In their country the winter torrents are said to bring down even gold, which the Barbarians collect in troughs pierced with holes, and lined with fleeces; and hence the fable of the golden fleece" (*Geography* xi. 2. 19).[8] While some are skeptical of connecting this, or any legend, with history (Braund 1994),[9] a similar practice is reported in many cases of ancient or primitive gold prospecting in gold-bearing rivers.[10] Rickard (1926: 48) explained that the natural grease in the fleeces held the gold dust, and that the fleeces were first shaken to loosen coarse particles of gold and then hung to dry so that the fine gold dust could be beaten out and collected.[11] He suggested that this could account for Jason's first view of the Fleece "hanging upon a huge oak tree like to a clod that blushes red with the fiery beams of the rising sun." It does seem to be the best explanation for the peculiar idea of a golden fleece, and the archaeologist J.W. Graham (1957: 118) has said that it "must" represent the practice of placer mining by sinking fleeces on the beds of gold-bearing rivers. Embedding real practices like placer mining using fleeces in the fantasies of legend may have been an intentional strategic choice by gold merchants concerned to conceal the true source of the gold. Herodotus (*Histories* III.107) tells of similar protective legends surrounding precious resources, such as the tale of the winged serpents who guarded the frankincense trees of Arabia (see also Stager (2001), "port power.").

The growth of Troy, with its successive destructions and reconstructions, culminated in the rich city of Troy II (2550–2250 BC), which Schliemann mistook for the Troy of Homer's Trojan War (Troy VI or VIIa) (Blegen, Caskey, and Rawson 1950–8; Korfmann 2001).

In Troy II a massive rebuilding was undertaken of truly monumental proportions. On the citadel, a walled area entered through a propylon with an internal colonnade was the site of five great megara, rectangular buildings with the entrance on the short side, protected by a "porch." The largest of these, Megaron IIA (45 m by 13 m) had a circular hearth 4 meters in diameter. To the west of the walled area a large building consisting of many small rooms was probably a storehouse or a group of workshops. The walls were extended outward, and two double gateways were built, one approached by the monumental Great Ramp. It was in this city that Schliemann found the remarkable (and

controversial) "Treasure of Priam" (Tolstikov and Treister 1996)[12] At least the gold of Troy was real, if not the Golden Fleece!

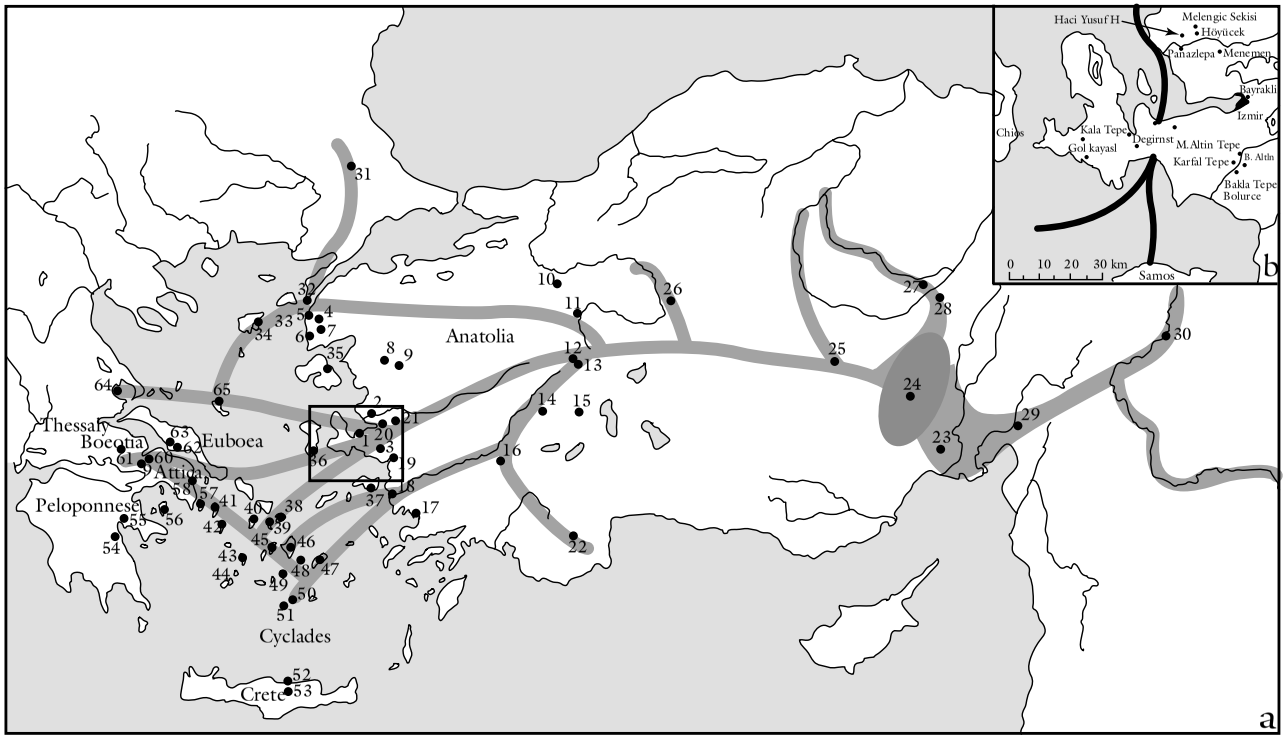
The Anatolian Trade Network

From Troy, the vast trading network that was the ATN stretched across Anatolia to Tarsus, providing access to the rich urbanized centers of lower Mesopotamia, and extending westward into the Aegean.

It was once thought that the eastward route of this network was to have been by sea along the Anatolian coasts (D.E. Wilson 1999: 96), but finds at key sites such as Demircihüyük in the Eskiş ehir plain, nearly the only natural passage connecting Troy with inner Anatolia, have now identified it as traveling inland (see Efe 1998). Connections began in the EB II period when Demircihüyük expanded westward to the Sea of Marmara and came into contact with the Troy I Pottery Group. Evidence for this has been found in a tripod cooking pot with long flat legs, and a bowl with a sharp "S" profile. An influence from inland Anatolia can also be seen in the metal tool industry of Troy II. Most importantly, the Eskiş ehir Plain had at least indirect connections with Tarsus, as demonstrated the use of the potter's wheel for the production of plates, which spread from Tarsus in Cilicia as far away as Troy (Efe 1998: 299; Çaliş -Sazcı, 2006: 204).

From Demicihüyük the ATN route had access to the central Anatolian plain, and Kültepe/Kaneş , 55 miles southwest of modern Kayseri. That city is best known for the early second millennium activities of an Assyrian merchant colony (*karum*), which transported textiles and tin to Assyria in exchange for the silver and gold of the Taurus mountains (Larsen 1987).[13] Kaneş , however, was already a well-developed trade center in the second half of the third millennium. Remains have been found of houses, graves, and a notable large, multi-roomed building with a large central hall (Özgüç 1986). The graves provided evidence for extensive long-distance contacts, including jewelry made of gold, electrum, lapis lazuli (from Afghanistan), and precious stones as well as cylinder seals. Beads, and a small pendant with gold and filigree and granular decorations had counterparts in the Royal Cemetery of Ur (Özgüç 1986: 42–3). There were also many imported items that attest contacts within the ATN in Anatolia: Syrian ceramic bowls, whose exact equivalents appear in Troy II and in Tarsus EB III; two-handled cups, and two-handled tankards whose silver counterparts were found in Troy, and ceramic bowls with exact equivalents in Troy II and in Tarsus EB III, which are judged to have been imported from western Anatolia (Troy) (Özgüç 1986: 38–9), gold beads that were made in the same shape and by the same technique as beads found at Karataş -Semayük in southwest Anatolia; Troy IIg; and Poliochni on Lemnos.

This expansion brought Anatolian EB II culture groups that had once been separated by mountain chains and defined by individual pottery groups into a new ceramic *koine*, that of the ATN, whose origins Mellink (1989: 324) identified in northwest Anatolia.[14] The archaeological signs of the network are ceramic vessels used for eating and drinking: cutaway-spouted jugs ("duck vases"), a distinctive form of two-handled tankard (*depas amphikypellon*), tall two-handled cups,[15] "Syrian bottles" (Emre, 1999; Zimmerman, 2005) two-handled cups, wheel-made plates, and incised pyxis.



1-Liman Tepe
2-Panaztepe
3-Bakla Tepe
4-Troya
5-Kum Tepe
6-Beşik Tepe
7-Hanay Tepe
8-Babaköy
9-Yortan
10-Demircihöyük
11-Küllüoba
12-Karaoğlan MevKii
13-Kakhk Mevkii
14-Beycesultan
15-Kusura
16-Aphrodisias
17-Iasos
18-Milet
19-Efes
20-Bayrakh
21-Ulucak
22-Karataş - Semayük
23-Tarsus - Gözlükule
24-Kestel
25-Acemhöyük
26-Polath
27-Alişar
28-Kültepe
29-Gedikli - Karahöyük
30-Titriş Höyük
31-Kanhgeçit
32-Protesilas
33-Imbroz - yenibademli Höyük
34-Lemnos - Poliochni
35-Lesbos - Thermi
36-Chios - Emborio
37-Samos - Heraion
38-Mykonos
39-Delos
40-Syros
41-Keos
42-Kythnos
43-Siphnos
44-Melos
45-Paros
46-Naxos
47-Amorgos
48-Keros
49-Ios
50-Thera
51-Christiana
52-Poros
53-Knossos
54-Lerna
55-Tiryns
56-Aegina
57-Thorikos
58-Raphina
59-Eutresis
60-Thebes
61-Orchomenos
62-Lefkandi
63-Manika
64-Pevkakia
65-Skyros

Map 5.2 Anatolian trade network. After Şahoğlu, Vasif. 2005: 342–43.

What was the attraction of this pottery assemblage? It must have been the pottery used by the elite who propelled the ATN across Anatolia. With little intrinsic value, its primary use has been identified as serving in special, perhaps ritualized, eating and drinking activities. The occasional pieces that appear in metal forms, such as silver two-handled tankards found in Troy II (Özgüç 1986: 38–9) and a Syrian bottle in gold found there in "Priam's Treasure" (Zimmerman 2005), support this interpretation. Metal versions were probably more common in real life than in archaeological excavations, because of the ease with which highly valued metals could be melted down and reused.

In southwestern Anatolia, a branch of the ATN led by way of Afyon and Beycesultan to Aphrodisias, where imports of obsidian, carnelian, greenstone, shell, and ceramics provide evidence for long-distance contacts with routes to southern Mesopotamia and sources further east (Joukowsky 1986: 480). From Afyon, a branch of the route led to Karataş-Semayük near Antalya, where the presence of lead stamp-seals provides evidence for the use of control mechanisms and social hierarchy (Mellink 1986; Warner 1994). Another route from Afyon continued on southwestward to the Aegean coast and the settlements of Miletus and the Heraion on the offshore island of Samos, and still another route by way of the Gediz (Hermos) valley led to sites on the bay of Izmir.

The largest of these sites on the bay of Izmir was Liman Tepe,[16] which was already a fortified settlement at the beginning of the Early Bronze Age. In EB II it was transformed by the building of a massive horseshoe-shaped defense system fortified with bastions that protected both the town and its harbor. A large building complex within the citadel with an open courtyard, storerooms, and a multi-roomed structure provided evidence of trade: finds of pottery typical of the Aegean islands; administration: a green serpentine seal; and cult activity: a group of stone phallic objects, a pan-like vessel, and a fragment of a bull rhyton. Şahoğlu (2004: 98–9) has compared the building complex to the corridor buildings of EH II mainland Greece, the best known of which is the House of Tiles at Lerna (Pullen 1986b; J.W. Shaw 1987; Hiller 1986). Erkanal (1996: 79; 1998; 1999), on the other hand, despite the parallel with mainland corridor building sites, sees characteristics that are very different from any Aegean settlement in Liman Tepe's fully developed citadel associated with a harbor and a lower city (posited on the testament of a spread of settlement evidence fanning out from the citadel toward the mainland). In these respects, Liman Tepe resembled Troy. Liman Tepe's position in the center of the west Anatolian coast, on a peninsula that served to separate north and south trading zones, made it a flourishing harbor, able to profit from the desire of merchants to transship goods overland to avoid the long voyage around the peninsula.

The ATN extended into the Aegean islands and to mainland Greece in the west. The strongest Trojan presence has been found in the offshore islands close to the north Anatolian coast – Poliochni on Lemnos and Thermi on Lesbos – but it also extended as far as the Cycladic island of Syros, where the site of Kastri was briefly fortified (the typical pottery of Syros, evidence of ATN forms, there called the "Kastri Group"). The influence of the ATN reached parts of Greece as well, where its pottery is called "Lefkandi I."[17]

Poliochni on Lemnos lay opposite Troy, and, like that city, was in a position to control the straits of the Hellespont and to profit by trade from the Black Sea. It also

rivaled Troy in fortifications, and wealth. Its houses were laid out in blocks, it had paved streets, squares with communal wells, a sewage system, and large public buildings (a "granary" and a "bouleterion"). Substantial fortifications protected the site, with a massive gate and rings of secondary walls. The participation of Poliochni in the ATN is evidenced by the hoard of gold jewelry similar to that found at Troy II, one in a trail of hoards that have been found along the network's routes.[18]

The number of metal objects found at Poliochni, according to Cultraro, "qualifies it as a major centre involved in a wider network of contacts between the northern Aegean and Cyclades, as well as western Anatolia" (2008: 455). Moreover, Poliochni was the site at which the use of tin bronze was introduced into the Aegean during the period of Troy I and Troy II, in the form of copper from an undetermined source pre-alloyed with tin. The use of this bronze gradually replaced the use of unalloyed and arsenical copper. The copper in the alloy was geologically far older than any known deposits in the Aegean, Balkans, or Anatolia; possible sources are central Asia, northwest India, or perhaps Afghanistan, which has no known copper deposits old enough, but which is geologically complex, thus offering at least a possibility (Pernicka *et al.* 1990; 2003: 163–72; Nakou 1997: 638–9; Cultraro 2008).[19] The argument for Afghanistan rests upon the discovery in Troy of an axe made of lazurite, a material mined in Badakhshan in Afghanistan, where there are also sources of tin (Stech and Pigott 1986; Treister 1996: 233–4). The potential for an eastern source for the copper-tin alloy found at Poliochni is also favored by the presence in Troy of lapus lazuli, likewise from Afghanistan. Another hint can be seen in the discovery in Tell Judaidah Phase G in the Amuq Valley, which was on the route between Afghanistan and the Troad, of perhaps the earliest evidence for the production of tin bronzes in the world (ca. 3000 BC).[20] Six bronze statuettes were found: three males with helmets and weapons, and three females with arms supporting their breasts in a typical Near Eastern position. Fragments of other tin bronzes, fragments of slag (5% tin), and crucibles with tin-rich copper encrustations were also found.[21]

Another island site close to the Troad was Thermi on Lesbos – today it is only 20 kilometers from the mainland. Despite the fact that it is reported to have no copper deposits, a crucible found below the lowest floor level attests metallurgical activity even before the earliest excavated houses were built (Lamb 1936: 157, plate XXIV, no. 30.43; Marangou 2003: 34). Two other well-preserved crucibles and molds were found in Town I, along with numerous copper objects and one bronze pin (Lamb 1936: 165). The site of Thermi is geographically positioned to have contacts with several other ore-producing areas: the Troad, the northern coast of Greece, the island of Thasos, and the Chalkidiki (Lambrianides 1995). The climate of Thermi resembles that of "windy Troy" (Marangou 2003: 35). Ore was often transported to such windy sites away from habitations, which provided favorable conditions for smelting, as in the case of Chrysokamino in Crete. Possibly Thermi served this same purpose. Like Poliochni on Lemnos, Thermi was involved in the early production of tin bronze using pre-alloyed metals (Stos-Gale 1992).

Kastri on Syros is an especially interesting island site with evidence for ATN activity in the later EB II and earlier EB III periods (ca. 2700–2300 BC). The site, located 144 kilometers southeast of Athens, was heavily fortified by defensive circuits that "may be viewed as miniaturized versions of the great defensive circuits of earlier stages in the

Early Bronze Age at sites such as Troy I–II and Limantepe."[22] Pottery finds at Kastri, which are identified in Cycladic terms as "Kastri Group," also fit the characteristic forms of the ATN pottery, another factor pointing to close connections with the Troad. The evidence for metalworking on Kastri is impressive, with silver, lead, and bronze objects, clay crucibles, and slate-sided molds for the manufacture of tools and weapons. Many of the objects are made from the same tin-alloyed bronze used at Troy and Poliochni.

Differing interpretations have been offered for the mixture of cultures on Kastri. Stos-Gale argued that it was the site of a short-term fortified refuge-type site probably occupied by people from Troy II (Stos-Gale and Gale 1984). Rutter suggested that the finds reflect "an influx of population from the east which passed through the islands en route to Euboea and the central Greek Mainland";[23] people making a temporary stopover, however, seem unlikely to have invested in such strong fortifications. On the other hand, Şahoğlu (2005: 352) sees Kastri, which is entirely Anatolian in character, as possibly a "colony" of Troy, part of expansive activities of the ATN. Özdoğan (2000) has identified another colony, or expatriate trading post, of the ATN, at Kanlıgeçit in Turkish Thrace, just south of the town of Kırklareli. It contained a small EB II–III citadel, with rampart and glacis, and a number of megara with stone foundations, aligned as at Troy. This settlement, which resembles a one-third scale copy of Troy, was preceded by Early Bronze and Chalcolithic levels with Balkan parallels. Presumably the Anatolian population came from western Anatolia to exploit the nearby copper mines.[24] On the other hand, Broodbank (2000: 311–13), rejecting the notion of a migration by refugees or an invasion by conquerors (Stos-Gale and Gale 1984, Doumas 1988; Barber 1987: 28–9, 137–9), has suggested that the Kastri Group ceramic finds on the islands are simply to be attributed to trade.

Cyprus – the Philia *Facies* and Early Cypriot Metallurgy

In the third millennium, much of the trade in Anatolian copper and other resources was carried on through merchants of Tarsus in Cilicia, making the wealthy settlement of Tarsus a tempting target. At the end of EB II (mid-third millennium) the city was attacked and destroyed, apparently by enemies who came from inland Anatolia, and who may ultimately have reached back to Troy (Mellink 1991: 173), following the trail of the ATN. The newcomers left their mark, as the city was quickly rebuilt in a new, northwest Anatolian fashion, marked by the use of megara (rectangular buildings with side walls that extended out to provide a porch) and with an array of pottery that included new shapes reflecting new customs of eating and drinking. This was the pottery and the cultural ensemble of the ATN, into which Tarsus was apparently incorporated at this time.

The fall of Tarsus had long-term consequences for the neighboring island of Cyprus, where some of its traders found refuge, introducing a culture named after one of its major sites, Philia. It is disputed whether the traders were actually driven out of the city by the attack or whether, anticipating trouble, they prudently removed themselves to the nearby island, where earlier sporadic contacts had suggested the presence of copper

resources not yet utilized.[25] Some evidence supporting the latter interpretation can be found at Late Chalcolithic Kissonerga/Mosphilia, on the west coast near Paphos, where localized, small-scale copper production has been attested (Peltenburg 1998: 188–9; Steel 2004: 115; Webb and Frankel 1999: 9); however, none of the few copper items found were made of Cypriot copper or were of typical Cypriot types. A spiral metal hair ring has Anatolian parallels among finds at EB II Tarsus (Goldman 1956; Gale 1991: 45), and one of the more substantial objects, the butt of an axe or adze, had a lead isotope analysis close to the copper ore at Doğançilar in the Troad, which was also the source for the metal in two daggers from the Cypriot coastal site of Vounous and two daggers from the coastal site of Vasilia (Tomb 1) (Stos-Gale, MacDonald, and Gale 1991: 349). This is significant because it confirms the activity in Cyprus of people involved in the ATN linking Tarsus with the Troad. It thus adds one more piece of evidence for the involvement of merchants from Tarsus in the Philia occupation in Cyprus.

Cyprus might seem to have been a rather desperate choice for the traders from Tarsus, despite their probable earlier business contacts with the island. Its later history, however, shows that it had rich copper resources that had not yet been significantly utilized. Until the third millennium, the island's history had been marked by conservative development and repeated apparent breaks in settlement. In some periods, contact with the mainland, and even continuity of occupation, was attested only by the survival of mice in their normal form, unaltered by the evolutionary changes associated with isolated species. (Peltenburg *et al.* 2001a: 57; J.L. Davis 1984). Cyprus had hardly kept up with the mainland, and it might have appeared to most to have little to offer to outsiders except old-fashioned round houses and freedom from the increased restrictions of growing mainland settlements. But it is likely that the merchants of Tarsus, when they signs of coming trouble, also saw opportunities there.

This, at least, was Mellink's hypothesis (1991; 1993a): that Cypriot copper working was set in motion by prospectors from Tarsus, who, foreseeing the coming attack on their city, recognized the potential of the ores on the island, and fled there, possibly taking with them the axe/adze as an ingot, to supply the beginnings of an industry. These prospectors were followed by small groups of people who settled in a number of locations along the north, south, and west coasts of the island, and inland near ore sources. The phenomenon is called the Philia *fascies*, after the village where, in 1942, their characteristic red-burnished and red-slip pottery (Philia ware) was first found in quantity (Dikaios 1953: 323–4).[26] Philia ware was produced in numerous Anatolian shapes; one that is easily recognizable is the flat-bottomed jug with a long, cut-away, beak-shaped spout. Mellink found similar red-burnished ware pottery in Tarsus (1989: 232–4), supporting her hypothesis of an immigration. This is also basically the position taken by the current investigators (Frankel, Webb, and Eslick 1996).

The Philia settlement on Cyprus appears to have been well organized for metal acquisition and export. The north-coastal site of Vasilia, with its command of the Agirdha pass through the Kyremia mountains leading to an easy route to the mining districts around Lefka (Hennessy, Eriksson, and Kehrberg 1988), served as a base for receiving materials from a network of mining and production sites along the Ovgos river, among them the recently published site of Deneia (Frankel and Webb 2007;

Webb *et al.* 2006: 281), which appears to have been involved in the transport of metal mined in the interior to the coast at Vasiliki (Frankel and Webb 2007: 157).

The Philia occupation at Deneia was small in scale, with simple pit graves, in contrast to the substantial and impressive rock-cut tombs at the coastal site of Vasilia. In EC I–II, Deneia probably continued to play a similar role, the only Philia settlement to continue to do so, while Vasilia seems to have been replaced by Bellapais *Vounous* and Karmi *Lapatsa*, whose cemeteries were flourishing in this period. In EC III Deneia still remained small, but toward the end of this period, or in MC I (ca. 2000 BC), it underwent a rapid expansion, evidenced by an "explosion of tomb construction" in one cemetery and the establishment of a new burial ground, facilities far exceeding that which could be accounted for by natural demographic needs (Frankel and Webb 2007: 159–61). The situation was similar throughout the island, with an increase in the number and spread of settlements; an influx of population, mostly from Anatolia, is probable.[27] The increase in population, with new elements entering, would have sparked competition for status and resources, which seems to be reflected in the disparity of tomb sizes, with some construction of large, well-made tombs.

Vasilia grew into a large and prosperous settlement – at least six locations in the vicinity of the modern village have yielded evidence of occupation. Finds include extensive pit burial grounds and some remarkably sophisticated rectangular tomb chambers with rear buttresses and long plaster-lined and paved dromoi with benches. Finds of metal scrap and worked pieces in one or two apparent merchant hoards, and metal artifacts from the graves, reflect extensive overseas links and probably fears that the attackers of Tarsus would soon follow (Webb *et al.* 2006). Analysis of the metal articles has shown that they contained copper from a variety of sources: Anatolia (Bolkarkağ, Ergani Maden), the Cyclades (Kythnos, Seriphos, and possibly Kea), as well as Cyprus (the Limassol Forest region, the smelting site of Petromoutti/Yerasa) (Webb *et al.* 2006).[28] A number of the artifacts are in the form of "rope" rings or arm bands; judged to have been too small for adults and too heavy for children, they have been tentatively identified as ingots, used as a medium of exchange. Perforated axes have also been suggested to have had a similar function (pp. 275–6). In EC I and II, Vasilia seems to have suffered attack and destruction, as suggested by the unretrieved merchant's hoards (p. 279) and a lack of evidence for further occupation; however, it appears to have been replaced as a merchant port by other northern harbor sites.

Evidence for an inland copper-working settlement has been found at Marki Alonia, which lies in the metal-rich northern Troodos area of central Cyprus. The excavators suggest that it was a specialized metalworking village whose inland location may indicate a relatively late foundation. The find of a casting mold for axe-shaped pieces in the earliest wall level – the earliest such mold found in Cyprus (Frankel *et al.* 2006: 217; Frankel and Webb 2006: 305–8) – establishes that copper artifacts – perhaps ingots – were produced from the very beginning of the settlement, although whether the inhabitants were also engaged in the extraction of ore is unknown.

After its initial exploratory phase, the Philia immigration soon developed into a broadly based demographic phenomenon, with well-established settlements and metal transport networks (Frankel, Webb, and Eslick 1996; Frankel and Webb 2006: 305).[29] As of 1999, Webb and Frankel had found 19 archaeological sites that had yielded acceptable evidence for occupation in the Philia *fascies*: 12 cemeteries, 5 settlements,

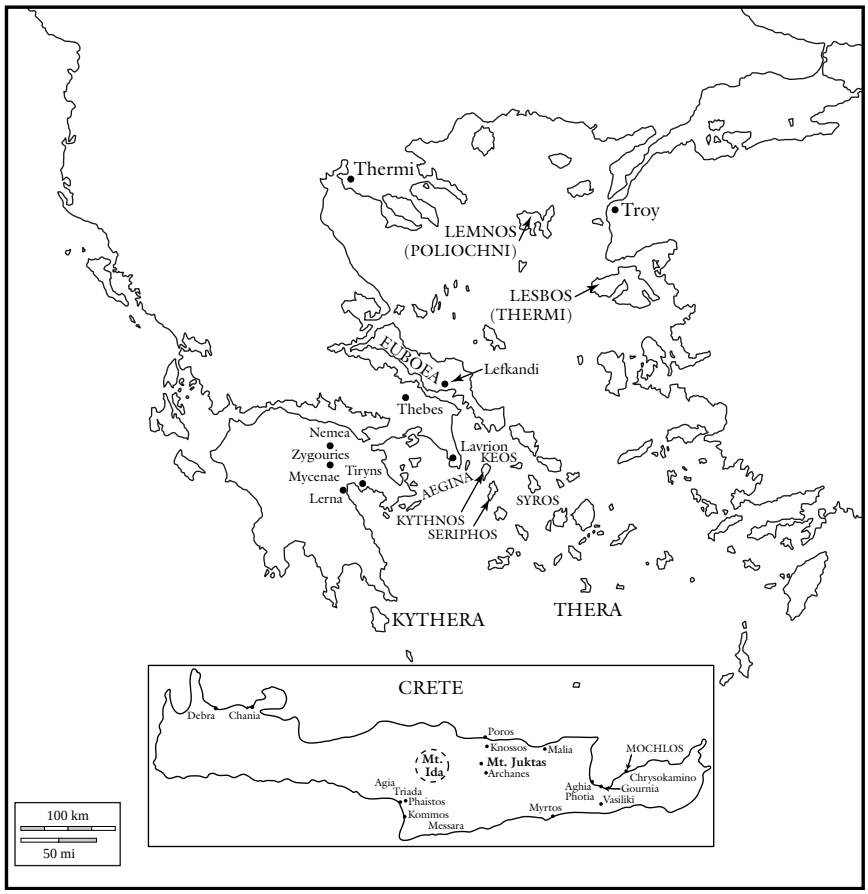
and 1 settlement with its cemetery (Kissonerga/Mosphilia) (Webb and Frankel 1999: 7, and table 1). The newcomers settled on coastal sites useful for trading connections, inland in locations near copper sources in the Troodos massif, and at transit points.[30] In most cases, settlements were made on land useful for their plough agriculture but unsuitable for the hoe cultivation of the native Erimi people, and there seems to have been little conflict between the two groups. In the few cases in which immigrants did appear to settle in already occupied sites, as at Kissonerga/Mosphilia (although there may have been a long gap in occupation between the Erimi and Philia settlements), their influence on the local population seems to have been generally gradual and relations were peaceful. At that site, although some copper-working had occurred before the Philia *fascia*, it was only in Phase 5 (ca. 2400 BC), the period of "intense contact," that strong Philia features appeared – Philia pottery, cattle, urn burials (Peltenburg 1998: 258–9), and new types of metal objects, including spiral earrings (or hair rings) (Webb and Frankel 1999) – and the settlement became "Bronze Age."

The interpretation of the Philia phenomenon as a population movement is not a case of "pots equaling people," for, in addition to the pottery, the newcomers introduced numerous fundamental changes that have Anatolian parallels. Central among these were key developments in metallurgy – the use of molds, the shift from copper and arsenical bronze to tin bronze, and the introduction of the pack donkey for transport – innovations that essentially brought about the transition from the Chalcolithic to the Bronze Age. Other Philia innovations with Anatolian parallels were low-whorl spindles and vertical warp-weighted looms (Webb 2002); direct fire-boiling cooking pots and hobs (pot supports); multi-room rectilinear buildings (finally, a departure from the traditional round house in Cyprus!); burial in chamber-tombs (Swiny, Rapp, and Herscher 2003: 495–6), and, in humbler burials, single-pithos burial; and the practice of providing abundant grave gifts. In addition to the copper industry, the settlers had extensive foreign contacts, as attested by imports, especially faience, found in both houses and grave offerings (Peltenburg 1991: 30; 1995).

Mainland Greece and the ATN

The ATN may have reached Greece by using Ayia Irini on Keos, the only island site with the entire ATN assemblage (Wilson 1999: 94–101), as a stepping-stone. The characteristic ATN pottery, known in Greece as "Lefkandi I" (Şahoğlu 2005: 352–3; 2008: 156; Efe 1998; Korfmann 2001), also reached sites at Manika on Euboea, Raphina, Thorikos, and Pevkakia, all sites with evidence for metals (McGeehan-Liritzis 1983), and metal-producing areas of the Balkans in the north (Maran 1998).

The House of Tiles at Lerna is the best known of a number of large multi-room buildings of the "corridor house" type that began to appear on the Greek mainland in EH II (Gejvall, Rutter, and Heath Wienecke 2000: vol. 3). Similar corridor-plan houses have been found at a number of mainland sites, including Nemea (Tsoungiza Hill) (Pullen 2006), Zygouries (Pullen 1986a), Thebes (the Fortified House) (Wiencke 2000: 298), and Kolonna on the island of Aegina (the Weisses Haus and the earlier Haus am Felsrand). A different type of large building, the Rundbau at Tiryns, is now identified as a granary (Kilian 1986).



Map 5.3 The Aegean and Crete.

The Lerna House of Tiles was built over the ruins of an earlier large corridor building, Building BG (Lerna IIIC). Building BG was surrounded by a defensive wall of cyst-like spaces, a type called a *Kastenmauerer*, which had no precedent in Greece but has been found in Mersin in Cilicia and at Thermi. The foundation of the wall was built in a herringbone style of masonry unknown elsewhere on the mainland, but, like the *Kastenmaurer* construction, also used in the east, at Mersin and Thermi, as well as at Byblos, Mari, and in southern Mesopotamia (Cosmopoulos 1991a: 156).

After the destruction of Building BG, the House of Tiles was built on its site, at a slightly different orientation (Wiencke 2000: 647).[31] It was a two-story corridor building, 25 meters by 12 meters, unusual for its terra cotta tile roof (Caskey 1960; Caskey and Blackburn 1997). This building was more than simply utilitarian. Red clay benches were set along the two long exterior walls of the building, providing shelter from sun and rain. The main floor had five rooms flanked by corridors containing stairs to an upper floor. There appear to have been open balconies on the upper floor, and a light well provided illumination for the interior rooms on the first floor. The walls of the rooms were carefully plastered, and in the largest room they were

decorated with rectangular panels. The stairs were fitted with clay treads, and the doors were set in wooden jambs.

The House of Tiles contained 103 EH II sealings, most in one small room (XI) of two with access only from the exterior. They had been stamped by 70 different seals to seal boxes and other containers, doors, and pottery. The use of seals suggests to some the existence of an administrative system.[32] A study of the use of the seals by Weingarten (1997) has revealed that, while the idea of seals had been borrowed from the Near East, the Lerna seals had not been used in the same pattern, and their use was very uneven. One had been used 8 times (Weingarten called its user the "Sealing Leader"); 2 had been used 11 times; the next 6 had been used 22 times; and the 55 least active seals had been used 62 times. This meant that most of the sealers were acting independently, sealing goods over which they had sole control, rather than as members of a hierarchy of control, as was characteristic of Near Eastern systems of sealing. She suggested, on the basis of the small figure of a typical ATN vessel on a seal that she identified as belonging to the "Sealing Leader,' that he managed a system of silver procurement in which the Lernians obtained silver from Siphnos and smelted it – Lerna being well-forested, while Siphnos was probably mostly treeless. The House of Tiles provided a storage space for silver, with each of the Lernians sealing his own silver and storing it away to await exchange during an annual trading visit by the Lefkandian traders.

One possible problem with Weingarten's scenario is the apparent lack of security for such a treasure of silver: Room XI, where the sealings were found, had access only from the exterior, and, at the time of the construction of the House of Tiles, the fortifications of Lerna were in ruins.[33] As a speculation, it seems more likely that some member, or members, of the ATN destroyed the House of Tiles at the end of EH II (Wiencke 2000: 653)[34] as part of their expansionary activities, evidenced by the existence of ATN "colonies" and by a new emphasis in the Cyclades on defensive fortifications. When the attackers had finished their work, the frightened people from the surrounding area buried the ruins under a tumulus and "consecrated" the spot with the circle of stone, respectfully building their small apsidal huts outside that taboo space. The other large buildings of EH II settlements were destroyed as well at some point, and many of the sites seem to have anticipated the possibility, as indicated by their heavy investment in fortifications. It is true that not all the destructions on the mainland were contemporaneous (Forsén 1992), but that does not necessarily mean that they were not connected – sporadic campaigns by individual participants in the ATN are a possibility. That the ATN may have reached Lerna, has been suggested by Weingarten (1997), who noted the apparent likeness of a typical ATN vase, a narrow-necked jug with a long beaked spout, on one of the most frequently used Lerna seals, noted above.

Crete and Metallurgy

Crete, apparently somewhat insulated from the ATN by distance, was not drawn into it.[35] In ECy II, the ATN connections only barely reached Crete: one jug of the ATN type, with beaked spout, was found in a tomb at Hagia Photia, and a similar jug, "but with marked differences," at Debla in the west of the island (Shank 2005; Şahoğlu 2005: 353). Rather than being a part of the ATN, it seems that Crete may have provided

a haven from it for refugees abandoning the smaller, indefensible island sites (Barber 1987).[36]

The most impressive evidence for such Cycladic migrations has been found at the site of Hagia Photia, east of Siteia in northeast Crete, which contained so much Cycladic material that it has often been regarded as a Cycladic colony (Watrous 1994: 701–3; 1993: 302–4; Davaras and Betancourt 2004; Day, Wilson, and Kiriatzi 1998; Betancourt 2003). Discovered in 1971, the cemetery contained 263 excavated burials from EM I–II (Davaras 1971; Davaras and Betancourt 2004). Most of the burials were in Cycladic-type chamber tombs with a small antechamber, and the grave goods were mostly typical Cycladic funerary offerings: pottery of the Kampos Group and several hundred blades of Melian obsidian, including prismatic blades. The range of grave goods included in the burials indicates that the settlement was socially stratified. Numerous copper artifacts with the same composition as metal smelted on Kythnos were found (Stos-Gale 1993), and two tombs contained Cycladic-type crucibles used as grave gifts. The crucibles had been used for melting copper, not smelting. The selection of gifts in the two tombs containing crucibles was middling in number and quality in comparison to the other burials in the cemetery, with no precious items or metal artifacts, which argues against the idea that it was the elite who controlled the supply of metal goods (Betancourt and Muhly 2007). These finds attest the local production of copper objects using already smelted copper, possibly from Chrysokamino (Muhly 2007: 99; Betancourt and Muhly 2007: 151), as well as metal from old, recycled objects.

Chrysokamino

Another site of early metallurgy in Crete was Chrysokamino in the Kavousi area, which was apparently utilized by Cycladic visitors on a sporadic basis (Betancourt 2006). These metallurgical visitors may have been seeking a suitably remote spot with good wind when they chose this isolated site, which was used to smelt copper brought from Kythnos and Lavrion from the Final Neolithic to EM III (Betancourt 2003: 4; 2006; Betancourt *et al.* 1999; Muhly 2006a; dates: N. Gale und Z. Stos: 299–319, in Betancourt 2006). There are no copper sources at all in the area, and the site contained just a small shack. The closest evidence for any sort of a settlement is a farmstead approximately 600 meters away, which did not yield a full range of the pottery necessary for daily living; moreover, no burials have been found (Muhly 2006a: 182–3).[37] The newcomers had apparently not come to settle, but only for intermittent working visits. A permanent settlement could have existed nearby – the area possesses good land, abundant water, and protected access to the sea – but none has been found.

The profitable exploitation of the ore at Chrysokamino required advance planning and capital: someone had to prospect for the ore, dig it, arrange for a ship with crew to transport it to the smelter, contract for the smelting operations, transport the smelted copper to workshops for final production, and send the finished products on to customers, or even, perhaps, to wholesalers. As Betancourt has argued (2006: 263; Stos-Gale 1998: 723; contra Doonan, Day, and Dimpoulou-Rethemiotaki 2007), these operations could not all have been managed by a single person since they involved a complex range of specialist activities. He saw the organization as presaging the later

complex bureaucratic organization of the Minoan palaces, which managed a variety of items in a similar step-by-step manner, from sheep to finished cloth, from agricultural production to the feeding of large populations, from the digging of clay to the production and distribution of pottery ranging from the very fine to the everyday utilitarian. Betancourt concludes that "some of the supervisory roles that played such an important part in later Cretan administration had a long history in Minoan Crete, emerging well before the Late Bronze Age" (2006: 263). On the other hand, it is far from clear that those who utilized and managed the site of Chrysokamino were Cretans!

Poros and Knossos

Another site on Crete that attracted Cycladics was Poros. Located at the outlet of the Kairatos river on the coast north of Knossos, it had probably been the first landfall for the original settlers at Knossos (Dimopoulou 1997; Broodbank 1993: 312; Dimopoulou-Rethemiotaki, Wilson, and Day 2007), and it grew into a typical harbor site that later served as the port of Knossos. In the variety of its activities and cultures, it provides strong evidence for the practice of metallurgy and for Cycladic connections. The earliest pottery dates to EM I, and much of it is Cycladic (Kampos Group) (Dimopoulou-Rethemiotaki, Wilson, and Day 2007: 92–3). People followed imports, and Cycladic islanders went to live and work in the community, perhaps even occupying their own enclave (Watrous 1994: 701–3; Dimopoulou 1997; Wilson, Day, and Dimopoulou-Rethemiotaki 2004; Davaras and Betancourt 2004).

Poros grew in symbiosis with its inland neighbor, providing a complementary element to the life and development of that town that eventually became the site of the palace at Knossos. The people of Poros were increasingly employed in the working of copper and in obsidian manufacture over the period of EM I to EM IIC. Unusually large amounts of obsidian have been found at the site. It was worked locally, and some must have been supplied to other sites in Crete, such as the Mesara, where numerous worked obsidian blades have been found (Carter 1998: 72). Most of the pottery found in Poros consists of Cycladic transport vessels, which, while designed for the transport of liquids were often used for small commodities, such as pots, as attested by the Late Bronze Age shipwreck at Uluburun (Carter 1998: 72), and could have been used (reused) to transport obsidian to inland Cretan sites.

Evidence for metallurgy in Poros is especially strong; it included 22 crucible fragments, with slag and dross; fragments of copper alloy artifacts, 1 possible ingot fragment; and 9 fragments of molds for the production of tools and weapons. The raw materials were imported, probably from the Cyclades, and worked and cast in workshops in Poros to produce objects for both use and distribution (Doonan *et al.* 2007; Dimopoulou-Rethemiotaki, Wilson, and Day 2007).

In contrast, at Knossos, the pottery reveals a different picture of life. Most of it is local and in form is suitable for communal drinking and feasting. Thus, while the inhabitants of Poros worked to support the material needs of the combined establishment, spending their lives in manufacturing and trade, in Knossos, increasingly larger groups apparently took part in communal feasting, providing a ritual basis that became the source of the power of a dominant elite (Day and Wilson 2002).

Despite the fact that Crete had meager, if any, deposits of copper (Stos-Gale 1993; 1998), using imported ores it developed into a major metallurgical center in the EB II period. At that time, 58 percent of the copper which came to Crete was from the Cycladic islands (Kythnos, Seriphos, Kea), 26 percent from Cyprus, 6 percent from Lavrion in Attica (better known to classicists as a source of silver and lead for fifth-century Athens), and 6 percent Anatolia, with small amounts coming from as far away as Feinan/Timna in the southern Levant (Philip, Clogo, and Dungworth 2003; Gale and Stos-Gale 2007).

Metal objects that have survived have done so for the most part because they were used as gifts in burials and as votive offerings. Some of the jewelry, however, shows signs of wear and there is evidence of repair on some daggers (similar to those on miniature marble figurines portraying men wearing or wielding copper daggers), suggesting that these objects were used in life as well as in death. Nakou (1995: fig. 5a, 9; Cosmopoulos 1991b: 57) suggests that the daggers functioned both as a weapon and as a sort of "dress code" of a certain status (daggers make up more than 70 percent of the copper artifacts). Similarly, one could speculate that the jewelry functioned as a status marker for women.

Mochlos

The development of metallurgy may have led to the building of ships capable of traveling to the Levantine coast, or Byblos ships may have ventured to Crete. But, however it was transported, a greatly increased influx of eastern materials, especially precious stones and other materials for the production of jewelry, reached Crete in EM II. The port site of Mochlos provides a good view of the development of this industry. Now an offshore island, in the EM period Mochlos was connected to the mainland and offered sheltered harbors on both sides of the isthmus, forming what its first excavator, Richard Seager, said must have been "the best harbour on the coast" (1909: 274). An interesting reflection of the maritime focus of the community was the common occurrence of small model clay boats, almost unknown at other sites in Crete, in the EM II–III levels at Mochlos (Seager 1909: 290).

In contrast to the earlier coastal sites, the overseas contacts of Mochlos appear to have been primarily with the Levant rather than with the Cycladic islands and the north, and its material culture was wholly Minoan, without evidence of Cycladic influence. By EM II–III, the small coastal settlement had grown into a manufacturing center for the skilled production of luxury items for trade,[38] producing stone vases and jewelry from imported raw materials, most of which probably came from the east (Soles 1992, 2005; Colburn 2008; Branigan 1991). The cemetery provides abundant evidence for this, containing more than 20 built tombs and a number of pithos burials, rock shelters, and pit graves. Constructed at the beginning of the EM II phase, and continuing in use until ca. 2000 BC, the tombs reflected the social hierarchy of the city, both in their contents and in their location (Branigan 1991: 99): the largest and richest tombs, the multi-roomed monumental tombs I, II, III and IV, V, VI, were in the best location, on the west terrace, where they faced the finest view of the sea and were most visible from afar, and they contained most of the imported goods and artifacts in the cemetery – large numbers of gold diadems along with other gold

jewelry,[39] incorporating amethyst, chalcedony, carnelian, sard, and ostrich eggshells. A silver cylinder seal, Syrian in origin and dated to the middle of the third millennium, was found with EM II material in Tomb I (Aruz 1984). In the jewelry there are parallels from Kültepe in Anatolia, Byblos, Egypt (Colburn 2008: tables 1,2), and the Royal Burials at Ur (Davaras 1975). Other burial offerings included Egyptian stone vases and seal stones. A relatively large number of ivory objects, the most common of which are ivory handles for bronze blades, also come from the Early Minoan cemetery. They were locally worked from ivory that probably came from the Syro-Palestinian coast.

Branigan has suggested that Mochlos should be seen as a "Gateway Community" that lived by supplying imports and finely worked vases and jewelry in exchange for the agricultural produce that its own limited territory (even including the onshore areas used by the inhabitants of the town) could not provide. The differences in tomb construction, location, and offerings revealed a ranked society, but one in which, it seems, the elite gained their status through their activities as traders and craftsmen (Colburn 2008).

During the period of greatest activity, EM II to early MM I, Mochlos was one of the richest sites in Crete. From MM I onwards, however, occupation was much less intense; it continued into LM I, but was brought to an end by the destructions of that period in eastern Crete (Branigan 1991: 98).

Archanes/Phourni – a palatial precursor?

Another site that offers evidence for the migration of Cycladic islanders to Crete is Archanes/Phourni, 8 kilometers south of Knossos, site of a later palace. There, the burial ground of Fourni has produced important Cycladic finds from the EM III levels of a built tomb, including nearly a thousand blades of obsidian, 13 marble figures, an ivory figurine, and 3 stone vases, all comparable to finds in the Cyclades. A tentative explanation for the presence of islanders at Archanes was that they were a group of refugees (Barber 1987: 136–7).

Early evidence of social ranking in some somewhat later private tombs at Phourni,[40] the cemetery that later served the palace at Archanes, foreshadowed that palatial development, according to Schoep (2002a, 2004a). Thus, Tomb B, built before 2000 BC and thus in MM IA,[41] advertised the status of the family that used it through an integration of the tholos and house tomb types and by its monumental size, predominant location in the cemetery, use of elements of "palatial" construction (a pillar crypt), and the presence among the grave gifts of ritual vases (Maggidis 1998).

Tholos Tomb C (Gamma) provided more evidence of the accumulation of wealth. One of the best preserved tholoi in Crete, it had an undisturbed single deposit level dated to MM IA (ca. 2050/2000–2000/1950 BC). The tomb contained 45 burials, which were made in larnakes and beneath the tomb floor and were themselves devoid of funerary offerings, which were buried under the larnakes and below surface burials. There was a total of 269 offerings, 164 under the larnakes and 95 below the surface burials. They included jewelry of gold, silver, ivory, bone, and faience. Two necklaces of ornate gold beads strongly resemble examples found at Troy in the "Treasure of Priam". Of special significance as evidence for close links with the Cyclades is an unusual

group of 15 Cycladic figures, made of marble with other materials – ivory, schist, quartz – some intact, some in fragments, probably ritually broken (Sakellarakis and Sapouna-Sakellarakis 1991: 116–80, 134–5, figs 93–5; Papadatos 2005; Rutter, Lesson 10). Tholos E seems to have an identical history of use to that of Tholos C, with a definite gap between EM IIA and EM III–MM I. In fact, Papadatos (2005: 63–4) sees the same situation for the entire Phourni cemetery.

The site of Archanes was first recognized as a palatial center by Sir Arthur Evans.[42] Difficult to access because of millennia of overbuilding, it had many palatial features in its final stage, which constitute the ruins that can be seen today: massive walls, ashlar masonry, the use of colored stones and wall plaster, traces of wall painting (Sakellarakis and Sapouna-Sakellarakis 1991: 32–3; 1997: 82), a theatral area, an archive room, and multiple shrines (a courtyard contains a large rectangular altar with a small stepped altar at its side, with evidence of worship in animal bones, a triton shell, parts of a stone offering table, and about 40 conical cups) (Sakellarakis and Sapouna-Sakellarakis 1991). Schoep (2002a, 2004a), however, argues that the earliest large buildings were not palatial in character but were functional courtyard buildings, and that the earliest evidence for access to foreign sources of luxury items appears not in these public buildings but only in the private homes and tombs of the elite, whom she identifies as probably merchants and traders. It was only later, after the expenditure of wealth had conferred distinction upon its possessors, and that distinction had been passed on to growing new generations, that the marks of a trader's life were obscured, and a new "nobility" appeared, helped in its rise, undoubtedly, by involvement in the ritual life of the community. Then, after a series of destructions at the end of MM IIB, the long-standing traditions of the courtyard buildings evolved to produce the elaborate New Palaces (see Chapter 6).

Archanes lies so close to Knossos that Evans suggested that it might have been a summer palace, although that view is no longer held. Nevertheless, the closeness of two palaces remains somewhat of a puzzle. Both began in the Neolithic or earlier as sacred spots lying near to Mt Jouktas, which appeared to the Minoans as like the face of Zeus, and close to the numerous other sacred places associated with that mountain – a peak sanctuary, the caves of Chosto Nero and Stravomyti, and the Temple of Anemospilia. These sites, by their very unusual nature, had long been considered sacred, and access to them (control of them?) would have conveyed advantage and power.[43] Added to this were the more mundane features of the area: an abundant supply of water at Archanes (which until recently supplied Knossos as well) and a rich hinterland with numerous satellite settlements, which by themselves could justify the presence of an administrative center in the area (Sakellarakis and Sakellarakis 1991: 29).

Looking westward? Kythera, a Cretan colony

While settlers and traders came to Crete from the Cyclades, Dodecanese, Anatolia, and from the east beyond, in the mid-third millennium (EB II), Cretans themselves moved outward to establish a settlement on the island of Kythera off the southern coast of the Peloponnesus (Coldstream 1972; Coldstream and Huxley 1984: 107; Broodbank and Kiriatzi 2007).[44] Coldstream and Huxley suggested that the

settlement on Kythera could have developed from a seasonal fishing camp,[45] but a recent study of the pottery has suggested a more complex picture (Broodbank and Kiriatzi 2007). Its authors see the complicated production procedures used in the making of the Minoanizing pottery on Kythera as evidence for the presence on the island of a community of Minoan pottery users as well as of Minoan potters – in other words, an immigration. The possible motivation for an immigration is, however, a problem. Coldstream and Huxley suggested fishing, but the location of pottery production in the heart of the settlement rather than in the small coastal communities where fisherman would have operated argues against such an explanation. Nor is there any evidence for a murex dyeing industry that might explain the choice of settlement location (Rutter and Zerner 1984: 75–6). Desire for arable land is also an unlikely explanation, since Crete at the time was probably not so densely populated as to have encouraged emigration; moreover, the land around the main settlement of Kastri was already occupied; and the small coastal enclaves to which the settlers spread over time did not offer ready access to arable land. Broodbank and Kiriatzi thus argue for a motivation based on connectivity – Kythera was settled as a link in a route to resources elsewhere.

That this "elsewhere" may in fact have been Messenia in the Peloponnesus, is suggested by pottery finds there of Kytheran Lustrous Decorated ware, both imported and locally copied, probably made under the direction of visiting Kytherans (Zerner 1993; Korres 1993). This was the pottery that eventually morphed into the pottery we call Mycenaean. The Messenian coastal site of Ayios Stephanos reflected contact with Kythera, and it was the unique source of a rare stone, Lapis Lacedaemonius, which the people in Ayios Stephanos did not have the skill to carve, but exported, probably without much profit. But the resources that attracted Minoans to Kythera more than the rare stone were probably metals – copper and the tin necessary to produce bronze – for which Kythera was a convenient way station.

An Aegean-centric view sees Kythera as possibly intended as a station on the route toward the metal sources of the Cyclades: starting in western Crete and traveling via Antikythera and Kythera to the western Cyclades, then reversing direction or heading straight home (Agouridis 1997). But the settlers of Kythera probably had even more long-range possibilities in mind – the copper of Cyprus and the tin that came via the Levant from somewhere in the east. Occasional finds of pottery in both Crete and Cyprus attest to the Cypriot connection. A single Cretan MM IA bridge-spouted jar, found at Lapithos on Cyprus in a context usually agreed to be EC IIIA–IIIB, was, at the time of its discovery, claimed as the earliest ceramic evidence for contact between the two islands (Grace 1940: 10; Lambrou-Phillipson 1990: 87; Watrous 2001: 211). Subsequently, a fragmentary Cypriot Red Polished (RP) III amphora (EC III) vase of a type common in cemeteries on the north coast of Cyprus, was found in an early level (EM III B or early MM IA) of the basement of the palace of Knossos (Catling and MacGillivray 1983). A slightly later Minoan Kamares cup (MM IB/MM IIA) was found at Karmi on the north Cypriot coast. The fact that these artifacts were found on, or originated from, the north coast of Cyprus may suggest some Minoan interest in Cypriot copper, since this was an area of metallurgical activity at the time. A number of Minoan bronze daggers and a razor were also brought to Cyprus during EC III and MC I, reflecting Cretan expertise in metal crafting. On the other hand, Northern Cyprus

may have served merely as a convenient stop on the route to the Aegean from the Levant, a spot where the Cretans picked up the occasional souvenir or traded a Cretan novelty.

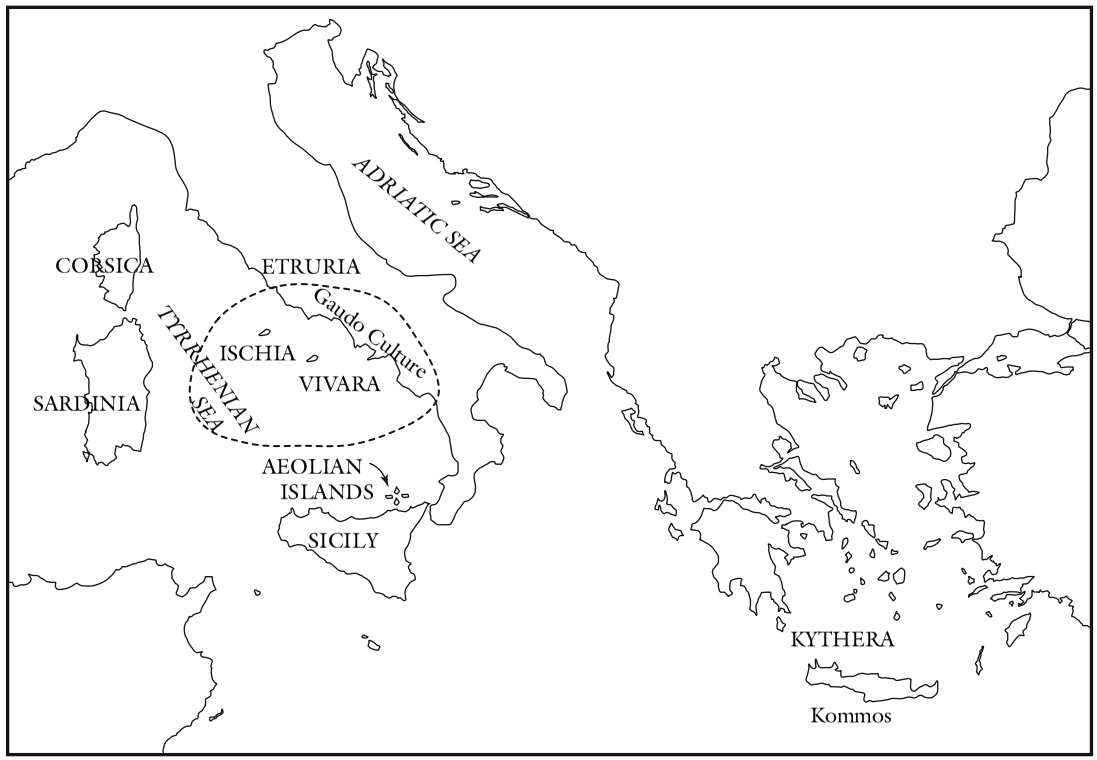
Stronger evidence for Cretan interest in Cypriot copper has come from the analysis of metal finds. According to Gale and Stos-Gale (2007), 26 percent of the copper artifacts found on Crete were made from Cypriot copper, most of them daggers. Other metal sources beyond the Aegean were also coming into use in Crete. Philip reports that small numbers of the copper artifacts found on the island are consistent with sources at Feinan/Timna in the southern Levant (Philip *et al.* 2003).

The other necessary component of bronze was tin, prized at first perhaps not for its ability to make a stronger material, but for its rarity and the status-enhancing sheen that it imparted to objects. Not present in the Aegean, tin first appeared there in ready-made alloys in connection with the ATN (at Poliochni), but by late EB II it had spread throughout the Aegean (Broodbank 2000: 285). When tin was first obtained in an unalloyed form, and its ultimate source, are contested issues (See Yener and Vandiver 1993a; 2003a; 2003b; Muhly 1993; Yener 2000). It may have come from Anatolia overland to a port in Cilicia, or ultimately from Afghanistan and beyond by the trade route through Byblos and then to Cilicia (Mersin, Tarsus). From Cilicia it could have traveled along the southern Anatolian coast, possibly stopping at some still undiscovered site on Rhodes, and on to a port on the northern coast of Crete.

Heading Westward

The Minoans must have been looking to both the east and the west in their choice of Kythera as a settlement site. To the west, copper was available on Sardinia, as were small deposits of tin, and these would have been available to them once they had used Kythera as a base for routes westward. Probably as early as the Middle Minoan period, Kythera played a role in the sea routes that reached to Lipari (the Aeolian Islands), and thence to Sicily, Vivara, and central Italy, to Sardinia and Malta.

While the main local sources of metals in Italy were in Sardinia and in the north – in Etruria, northern Italy, the Alps – some Italian areas that themselves lacked metal resources played a crucial role in the development and spread of metallurgical trade, as attested by finds of metal artifacts made from metal brought from other sites at the Guado cemetery at Paestum, dating from the last third of the fourth millennium to around the middle of the third (Giardino 2000b).[46] This site was the center of the Gaudo culture, which encompassed numerous coastal sites, including the island of Ischia, as well as sites controlling the gulfs of Gaeta, Naples, and Salerno. Gaudians thus occupied essential points on the prehistoric sea routes linking the southern and the northern Tyrrhenian, from which they probably obtained their copper. They also controlled the river network that led to the inland plains and ultimately to the Adriatic and Ionian coast. It was a close-knit, well-organized system in which settlements had a hierarchical ranking, with Paestum one of its major centers.[47] The site of Guado provides evidence for the development of the intentional alloying of copper with arsenic, a technology that was then rapidly diffused through the Mediterranean by seaborne connections.[48] The Gaudo culture may have come to an end in about



Map 5.4 Westward expansion.

the mid-third millennium; because there is no evidence beyond that of the tombs, no explanation of the collapse seems feasible.

But metallurgical settlements in coastal Italy by Aegeans continued late in the third millennium, when a number were made along the Tyrrhenian coast of the Italian peninsula (Bernabò Brea 1985; Cazzella and Moscoloni 1998). These settlements seemed to have been without territorial ambitions, set up with an eye to maritime contacts. It is unlikely, however, that newcomers approaching Italy from the Aegean would have gone directly to such sites, even less likely that they themselves would have sought out the sources of metal in Italy. The commoner practice in establishing trade contacts in foreign areas was to make use of an offshore island where defense would be possible in case of a hostile reception and where all parties could meet on equal terms. As Map 5.4 suggests, a convenient choice would have been the Aeolian islands – Lipari – already familiar as a source of obsidian, but at this point turning to metalworking.

Sardinia

Sardinia is one of the main resource areas for metal in the central Mediterranean, and early experiments in its use would be expected. In the Late Neolithic, the fourth millennium cal. BC, a single culture, the Ozieri, overspread the island, with a late or sub-Ozieri phase extending into the third millennium (Tykot 1999: 73; Lo Schiavo 1989). By the third millennium, the earliest evidence of metallurgical activity is attested on the island by finds of artifacts of silver and copper and their slags in Ozieri and sub-Ozieri phase "hut bottoms," circular depressions for dwellings with little or nothing preserved of the superstructure (Usai 2005: 258–61; Giardino 1992: 304–5). These also provide direct evidence of the use of complex metallurgical skills to extract silver from galena by desulphurization and cupellation" (Giardino 1992: 305; Lo Schiavo 1989: 283).

The production and use of metal objects, notably daggers, is reflected in the best-known expressions of the Ozieri, their megalithic monuments. These include the impressive rock-cut tombs, called Houses of Giants (*domus de janus*), that range from single rooms to extensive multi-chambered structures; and *menhiras*, or standing stones which often bear either representations of the deceased as schematic faces, a trident, or an upside-down relief thought to represent the deceased or to be a symbol of death. The *menhiras* often display a portrayal of a dagger as well, and Lo Schiavo (1984: 26) has drawn attention to the fact that these monuments are sometimes found in the vicinity of copper sources.

In Sardinia around 2300 BC there was a significant break in the trend toward increasingly complex settlements. Many long-lived sites were abandoned, including sanctuaries and cemeteries that previously had regional importance. Replacing these were numerous small dispersed farmsteads, each with its own megalithic tomb for local burial rites. At the same time, trade contacts beyond the island diminished, and the native pottery became much cruder and plainer, without the earlier differentiation into regional styles.

A similar picture of social breakdown is seen regionally, in Corsica, Almeria in Iberia, and Languedoc in southern France. Traditionally, this period of regression and collapse was attributed to invading "Beaker People" from the European continent, but recent interpretations of Beaker pottery have changed this view. Rowland found no evidence

for a large influx of Beaker People into Sardinia, pointing out that the period of Beaker appearances was very extended, that most sites had few examples, and that most of these occurred in local Ozieri cultural contexts – "while some of the material may have been imported, the deceased were indigenous" (2001: 33; Dyson and Rowland 2007: 51–2; see Waldren and Kennard 1987). Trade contacts with southern France and Iberia are sufficient to account for the phenomenon. Lewthwaite (1985b) suggested the collapse was brought about by agro-pastoral intensification associated with the introduction of the plow. Webster, while he questioned the use of the plow, agreed that the degradation of the land through intensive agriculture was a significant factor in the collapse of the trend toward more complex settlement organization (Webster 1996: ch. 4).

Iberia

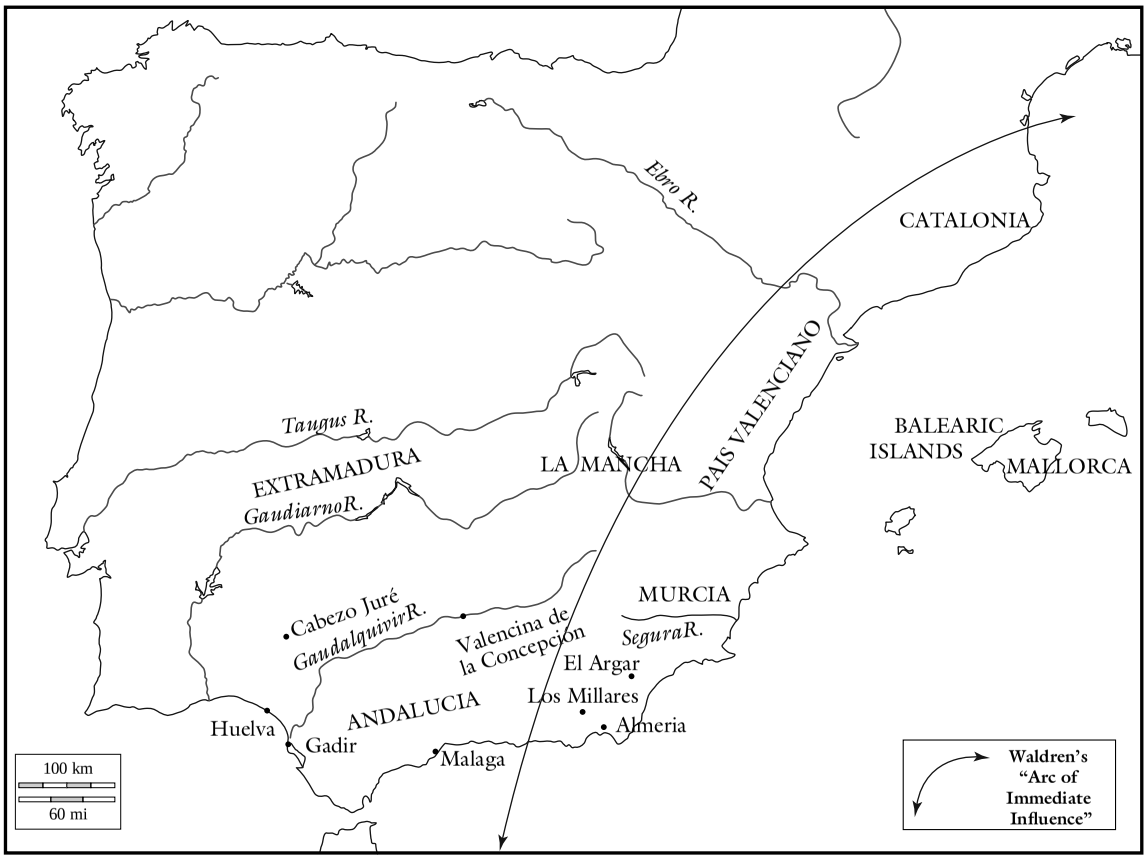
By the mid- to late fourth millennium, small, possibly short-lived Neolithic settlements appeared alongside collective tombs in lowland southeast Iberia (Chapman 1995: 34), and by ca. 3000, agricultural settlement was widespread in the two major areas, the southeast (Almeria) and the southwest (the Guadalquivir Valley), into which the differing air currents from the Atlantic and Mediterranean effectively divide the peninsula. The southwest of the peninsula, which is subject to Atlantic winds and currents, tends to be humid, while the southeast, subject to Mediterranean climate, is dry, "the driest region in Europe" (Mathers 1984: 14; Carrión *et al.* 2010). Iberia thus illustrates the difficulties of finding a single explanation of settlement change even within an apparently well-defined geographical area because of significant local variations in landscape and weather conditions. These individual elements of climate determination are, of course, multiplied many times when one attempts to provide a Mediterranean-wide explanation for changes.

Both areas of southern Iberia have rich metal resources that strongly affected their development, but the timing of the development differed considerably, occurring first in the southwest. There intensive exploitation of the rich metal resources led to the early development of a specialized and highly organized copper industry, with the primary site of Valencina de la Concepción (Seville) and a number of feeder sites such as Cabezo Juré. In the southeast, metallurgy developed later, at Los Millares, and even later, in the second millennium, at El Argar.

Valencina de la Concepción

Valencina had rich agricultural land and was an early center of intensive agriculture, with areas attesting food preparation and consumption, storage, the keeping of animals, and craft work. Nocete calls it "the main political centre of the first hierarchised intersocial structure of Western Europe" (Nocete *et al.* 2008: 718).

But Valencina also possessed rich mineral resources, and its development came to be concentrated upon these as metallurgical expertise increased. The metallurgical operations at Valencina extended from the fourth to the second millennium, with the first half of the third millennium as the period of greatest size and complexity. All stages



Map 5.5 Iberia.

of production were carried on, from accessing raw materials to the manufacture of products. Valencina was the main site, obtaining its copper from a number of feeder sites. Production was specialized: 13 types of copper items have been identified, and all were associated with household use: knives, chisels, punches, needles, hook, saws. Valencina, which lay at the mouth of the river, was strategically located for the distribution of these products, acting as a gateway community sending goods to southern Europe and to north Africa, which could be reached without losing sight of land. In addition to metals, local trade in limestone blades reached distances of more than 500 kilometers (Nocete *et al.* 2005b). In return, it received imports, most notably ostrich shells and ivory from Africa (Nocete *et al.* 2005b: 66; 2008: 718, 731; Harrison and Gilman 1977).

Cabezo Juré, Huelva

The mining site of Cabezo Juré, Huelva Province, was one of a large number of "feeder" sites that served the site of Valencina.[49] It was located in the major mining district of the Iberian Pyrite Belt in the largest concentration of sulfide ores known on earth. It formed part of the operation of a fully specialized copper industry from the beginning of the third millennium.

The site provided no evidence for agriculture – no tools and storage facilities, pollen or plant data – although evidence shows that hunting was practiced (Nocete 2006; Sáez *et al.* 2003). According to Nocete (2006: 650), Cabezo Juré was settled by a community that was already technologically and socially specialized in the metallurgical production of copper, as evidenced by the massive presence of copper ores, furnaces, crucibles, hammers, molds, abundant pieces of slag, and fragments of artifacts at various stages of production (axes, knives, saws), but with no evidence for the earlier stages in the development of metallurgy. This, combined with the lack of agriculture, suggests that the community was a "colony" set up by an already established primary settlement as part of a system of metal production.

The site, two hectares in extent, was highly organized and specialized for metal production and betrays a hierarchical system. The settlement lay on a slope and was divided into walled sections; the southern slope was used for reduction, which took place in a pit, clay oven, or with the use of a pot-oven, which permitted the easy extraction of the metal (although with many impurities) on breaking the pot. This process was often carried out at the mine, or at some other location outside the area of habitation. The following phases, smelting, casting, and annealing, took place in workshops or specialized areas in the workers' housing area on the northern slope. The ore came from a site 5 kilometers distant, and was transported by horses, as attested by quantities of horse bones at the site.

On the summit of the site, a stone citadel, enclosing a large water-storage cistern, provided the only protection and defense. No metalworking took place in the summit area, but it was the location of all the exotic and valuable objects found on the site, including items that had traveled up to 200 kilometers: gold sheet, ceramic, and marble cups, linen textiles, and cereals (Nocete 2006). The occupants of the citadel also controlled the horses that were used for the transportation of the ore. They ate much better than the workers in the village below, too, consuming three times the amount of

meat from the hunt as the workers did. The community was thus sharply divided. On the upper site were the few elite managers/owners, who controlled the means of defense – the fortified summit – the stored water supply, and the furnaces and horses that were the essential elements of the process of production. On the lower site were the masses of workers, who had no means of defense or control over the means of production or transport, and less access to food and water.

Valencina with its system of metal production through the use of feeder sites offers a particularly clear example of the detrimental effects on the environment caused by human activity. The development of intensive mining and metallurgical production resulted in systematic deforestation; increased erosion; and the beginnings of heavy metal pollution in the estuaries of Tinto and Odiel rivers (the Gulf of Cádiz) (Nocete *et al.* 2005b). As a result, in ca. 2500 BC, the system collapsed.

Los Millares

In southeast Iberia, with its quite different environmental conditions, metal production beyond the household level lagged several hundred years behind the southwest, with the best- and longest-known copper-producing community in the area, Los Millares, 17 kilometers north of Almeria, providing evidence only from ca. 2700 (Chapman 1990: 75–9: Leisner and Leisner 1943; Arribas and Molina 1984; Nocete 2006).[50]

Los Millares is perhaps best known for its complex system of walls, which appears to have begun at an early stage of the settlement and was subsequently developed. In 2700–2400 BC, Los Millares possessed three lines of semicircular bastioned walls; over the period 2400–1900 BC, the population presumably grew and the walling of the site increased: a fourth exterior wall, with a length of approximately 310 meters (the largest known in Chalcolithic Europe), was built, and over time, 13 fortlets were added. The design and construction of the walls displays a sophisticated grasp of geometric forms, although the application was simple, probably limited to the use of a compass and straightedge, or two sticks and rope with a straight line (Esquivel and Navas 2007). Monumental in size, the entryway provides an example: it was formed by two perfectly symmetrical equal curvilinear structures that allowed passage of only one person at a time.

The complexity of the site, and the collection of grave goods in the communal tombs at Los Millares, suggested to Chapman (1990: 177–95) the beginnings of social ranking and unequal access to wealth between groups, based on specialist production of metal artifacts and other craft good for an elite. This interpretation is now contested, however. Gusi and Olaria (2000) pointed out that metallurgy was only a small part of the town's activity, and the apparent hierarchical structure could have been based on agriculture and herding.

Rovira (2002) disputed the claimed complexity of the site based on the interpretation of the walls as a system with outer walls and outlying forts, suggesting instead that the site may not have been the product of a single occupation or a coherent plan: the walls being built first (between 2932 and 2667 cal. BC), and the "forts" considerably later (2461 and 2296 cal. BC). Esquivel and Navas (2007) focused on the sophistication of the walls as a system, seeing them as resulting from the application of geometrical concepts not only for practical ends – defense, control of resources, space

demarcation – but also to express symbolic identity, by displaying status through monumentality, and exhibiting intellectual achievement. The authors even suggested that the use of regular geometric shapes, such as circles and ellipses, and the application of the concept of axis symmetry, "support the argument that geometry was independently discovered by a wide range of ancient cultures and constitutes one of the most important multicultural symbols in architecture" (Esquivel and Navas 2007). These interpretations of the walls do not, however, take into consideration the existence of a series of similar bastioned fortifications spread across the west Mediterranean basin (coastal Iberia, southern France, Sardinia, and the Balearic islands).

The widespread occurrence of these bastioned fortifications, and the existence of numerous parallels in artifacts in southern France, Sardinia, and the Balearic islands – Waldren's "arc of immediate influence" (1998: 37–8, fig. 5) – have led to the identification of an energetic "maritime interaction sphere" (Lewthwaite 1985b: 221–4) involving traffic in metals (ingots, axes, and other artifacts) "in a chain of contacts stretching from Iberia to the eastern Mediterranean between approximately 2200 and 1800 B.C." (Lewthwaite 1985b: 223; Waldren 1998: 37–8; 2002. Contra: Rovira 2002; Chapman 1990). Elephant ivory from Africa traveled along this arc, as did early metallurgical technology, as attested by the finds of beaker sherds with encrusted copper oxides (see Map 5.5) (Waldren 2002: 163).[51]

In the settlement itself, workshops have been identified for metals, lithics, and bone. In one metallurgy workshop, a central furnace was surrounded by light slag, remains of crucibles, and beads of copper; there was a pit in which heavy slag and fragments of mineral predominated. Areas were dedicated to the storage of the products of the shop for exchange, possibly as tribute. The organization of the production and the selection of primary materials with a high arsenic content was carried on for the purpose of producing prestige pieces, such as daggers and axes. While metallurgy did not drive social development, it could favor the maintenance of power of certain groups and settlements through the exhibition and circulation of prestige items and the control, thereby, of the means of production.

Specialized work in stone was also carried on at Los Millares: pressure-flaked flint arrowheads, whose production was concentrated in certain areas such as the bauks and bastions of Fortlet 1, and millstones. Alabaster, ivory, and bone were used for making prestige objects and anthropomorphic figurines. Skilled craftsmen were also engaged in the production of luxury pottery, including some with symbolic designs, and bell beaker pottery. The grave goods from the large necropolis included pottery; stone, clay and bone figurines; metal tools and weapons; and some exotic raw materials (ostrich shell, amber, ivory).

When compared with the earlier development of metallurgy in the Valencina Valley region, Los Millares, was considerably less advanced. Metallurgy always remained on a small-scale level, and bronze was never produced. In the second millennium it was gradually overshadowed and eventually supplanted by the El Argar culture.

From a chronological point of view, the transition from the Los Millares to the Argaric culture clearly does not fit into a pattern of collapse at the end of the third millennium. The shift appears to have come about gradually from within as El Argar grew beyond its parent culture in metallurgical skills, in part perhaps because of closer proximity to copper sources, while the settlements of Los Millares in riverine areas,

subject to flooding and not in easy communication with each other, were gradually abandoned for more practical hillside sites.[52]

The End of the Third Millennium – Multiple Collapses

The third millennium ended with a series of collapses of both large states and smaller communities. Not all occurred at exactly the same time, nor can most be closely dated, but a definite pattern appears, exemplifying Marcus's (1998) Dynamic Model of state consolidation, expansion and dissolution. Sharing the same Mediterranean environment, and interconnected by the political/economic system of elite gift-exchange, especially in the east, it was an interconnected world. Thus, a major factor contributing to the widespread troubles was undoubtedly the collapse of the two major powers of the eastern Mediterranean, Egypt and Akkad, which seriously affected long-distance maritime exchange.

Egypt

The best known of these collapses was the First Intermediate Period in Egypt, in which a well-established central royal power broke down. While the causes are complex and subject to dispute, one important factor must have been the growing weakness of the central government that began with the extremely extended reign of the Pharaoh Pepi II. Over a long reign of 94 years, Pepi granted exemptions from taxation to many provincial institutions, which, as a result, enjoyed increasing autonomy, becoming regional power centers (Redford 1992: 60; Knapp 1988a: 120–1). Pepi was followed by a rapid succession of ephemeral rulers until shortly after 2140 BC, when rebellious nobles broke away and formed an independent state at Thebes. Egypt was thus divided between two competing power bases, Thebes in Upper Egypt, and Herakleopolis in Lower Egypt, a city just south of the Faiyum region. The situation is described in literary sources as one of lawlessness and famine that spread throughout the land as a result of a series of low Nile floods. Contact between Egypt and Byblos came to an end, and a general decline set in for the next 150 years (Roaf 1990: 103).

Bell (1971) argued, mainly on the evidence of the ancient sources, that a "Great Drought" had occurred ca. 2200–2000. While initially dismissed as based on exaggerated and unreliable ancient accounts, Bell's argument is now supported by scientific evidence that a period of low Nile floods did occur, resulting from conditions in equatorial Africa that created a diminished water supply to the Nile tributaries and accompanied by the encroachment into the Nile Valley of dune sands (Hassan 1997). A possible contributing cause of the dry conditions has been seen in tephra fall from volcanic eruptions in Anatolia (not the Santorini eruption, which occurred at the earliest in the seventeenth century BC) (Weiss *et al.* 1993; Weiss 1997; 2000). This could not have been the sole cause, however, for the area experienced a warming trend rather than the cooling period that usually results from large eruptions (see Peltenburg 2000). In fact, this was one of three periods of first order climatic anomaly that affected the entire Near East, the "dry shifts" of around 3000, 2200, and 1300 (Butzer 1995: 138; 1997).

Akkad and west Asia

The dry conditions also struck the Akkadian empire (Weiss *et al.* 1993; Wilkinson 1997; Cullen *et al.* 2000). To these were added years of intense agricultural production that had worn down the population. As food became scarcer, many people abandoned their villages for a nomadic life. At the same time, Semitic-speaking pastoralists, the Amorites, filtered into the country. According to the traditional view, the Amorites were an invading horde and a major factor contributing to the decline in west Asia. More recently, however, they have been seen not as invaders but as a group that gradually filtered into, and integrated with, the society of Sumer. There is evidence, however, that the Sumerians did not see them in this benign way, for in 2034 BC they built a "wall against the Amorites," a great dyke stretching from the Euphrates to the Tigris. But the Amorites continued to filter in, settling in the cities, intermingling and eventually merging with the local population, and by the second millennium, many of the rulers had Amorite names (Roaf 1990: 108; Lönnqvist 2008). The same phenomenon reoccurred later in Egypt, where, by the fifteenth century, Amorite rulers, called by the Egyptians the Hyksos ("rulers from foreign lands") ruled over an Egypt that was again divided (the Second Intermediate Period).

By the end of the millennium, a chain of revolts in west Asia had left burned settlements and widespread devastation. The survivors contracted into villages or turned to nomadism. Some settlements suffered the fate of Tell Brak, which appears to have been abandoned after being deliberately leveled by its occupants (Oates and Oates 1997: 195; Matthews 2003). In 2300 BC the Akkadians destroyed Byblos (Butzer 1997: 235), and in 2240 BC the inland trading center of Ebla was destroyed by fire. Ugarit was destroyed at the end of the Early Bronze Age; Tarsus at the end of EB III, ca. 2200 BC; and Ebla, having been rebuilt, was destroyed again in ca. 2000 BC. Watrous (1994: 734) sees few signs of trade during this period of EB IV, ca. 2250–2000 BC, but in the Amuq Yener (2005) sees a shift in settlement toward the southern fringes of the plain where settlements grew up nearer to the main east–west route linking the Aleppo region and the Mediterranean coast, suggesting that some degree of interchange continued.

Farther south, in Palestine there was a radical shift to small sites while the larger centers disappeared. At one time, this too was ascribed to an invasion of the Amorites (Kenyon 1966: 2, 34, 47, 59–61, 76); more recently, however, it has been attributed to environmental degradation and the strategies undertaken to cope with its effects, (which very probably involved some adoption of nomadism) (Rosen 1997; Peltenburg 2000: 189). As Rosen has explained the situation, in the southern Levant moist conditions had allowed the rise of the first city-states. Many of these were located along the low foothills at the eastern edge of the coastal plain, allowing for the use of the hills for olives and grapes and of the coastal plain for the growth of cereals. In the occasional bad year, the use of storage – in large granaries provided by the elite – alleviated shortages and bolstered the power of the elite. But when persistent drier conditions arrived, the elite, seeing the shortages as advantageous – and temporary (as they usually were) – did nothing to devise innovative solutions, such as creating a new system of canal irrigation from upland springs. On the other hand, the people, seeing the problems as heaven-sent, relied on the traditional propitiation of the gods, and put

their energies into constructing temples and cult sanctuaries. When this did not work and the stored supplies gave out as the drought persisted, people abandoned the cities and towns for small villages and pastoral camps near perennial springs (Rosen 1997). Weiss called the situation in west Asia and Egypt the "Habur hiatus I," and identified it as the result of a short-term climatic event, perhaps caused by the eruption of an Anatolian volcano (Weiss *et al.* 1993; Weiss 1997; 2000).

Anatolia

In Anatolia, the site of Titris Höyük in the Sanliurfa province of southeastern Turkey illustrates some local responses to the increasing difficulties.[53] The site lay on an important trade route across the northern fringes of "Greater Mesopotamia," at a crucial point providing river access by way of the Tavuk Çayh to the Samsat ford of the Euphrates river. In the Early Bronze Age, the residents retrenched, abandoning some of the suburbs and building a massive fortification protecting the eastern approach to the city. Burials were also brought into the city, with some tombs being built into the new houses, a radical change in burial practices suggesting external threats, possibly from Tatar, a neighbor that controlled land access to the Samsat ford. This may also explain an odd feature: a circular plastered basin inside a house in the Outer Town that contained 17 human skulls (15 young males, a female, and a child) arranged in a circle facing outwards and surrounding a central pile of long bones.[54] The males appear to have died as a result of trauma to the head. Possibly this was a monument to fallen heroes of the city – or perhaps a gruesome warning of the fate of those who would attack it (Algaze *et al.* 2001: 69).[55]

The city collapsed rather suddenly at the end of the Late Early Bronze Age, with occupation shrinking to only the central mound, about a tenth of the former inhabited area (Matney, Algaze, and Pittman 1997: 71). Much of the population appears to have been absorbed by the surrounding rural communities, but others must have migrated out of the area or shifted to a pastoral/nomadic life (Matney and Algaze 1995). That this was concurrent with the collapse of the Akkadian Empire suggests that the collapse of the market for goods traveling on the trade route across the Samsat ford may have been a factor in the sudden decline of Titriş , although localized hostilities probably also played a role (Algaze *et al.* 2001: 68–70).[56]

Most of the ATN sites on the west coast of Anatolian also underwent drastic social and political changes at this time. Monumental administrative buildings in the citadel of Liman Tepe were abandoned, replaced by smaller houses and workshops, and the population was reduced (Erkanal and Günel 1994; Şahoğlu 2005; Şhoğlu 2009).[57] Troubles extended as far north as Troy, where the fortifications of Troy II Middle Troy I (Ig) and the Great Megaron were destroyed by a fire of unknown origin, ca. 2280 BC. The city was rebuilt once again, but on a much reduced scale (Troy III, ca. 2250–2200 BC) with small, closely packed houses and no regular ground plan. On the citadel, while the largest of the monumental buildings, Megaron IIA, remained in use, the other large buildings were not rebuilt. Even the community structure seems to have changed as the whole community was given access to the citadel. The fortification wall was rebuilt and widened on the south side, but on the southeast side the old wall was used. Only one gate was rebuilt. Some of these firey destructions may have been

accidental or the result of earthquake, but the emphasis put upon fortifications, not only in Troy, but throughout the Aegean islands at this time, suggests a hostile world, in which, despite trade connections, every settlement had to be well prepared for enemy attacks (Ünlüsoy 2006).[58]

The Aegean

In the Aegean islands, in the second part of ECy II (the Kastri phase), new, Anatolianizing features were introduced, with new ceramic shapes characteristic of the ATN – the tankard, depas cup, lentoid jug, and wheel-made plate. Connections with Troy II now predominated, and there were some population movements from Anatolia to the islands and to Crete (Manning 1997).

Toward the end of the third millennium, at the end of ECy II, however, trade among the Cycladic islands and with Crete was interrupted. While Melos saw increased population and Aegina V experienced a continued high level of organization (Peltenburg 2000: 193), in many of the smaller islands settlements disappeared and populations clustered on a few sites on the larger islands, or, in some cases, fled to Crete (Broodbank 2000: ch. 10). Some island sites may have been totally deserted. In fact, Rutter (1984) suggested that there was a gap in settlement on the islands for 100 to 150 years in the ECy III period (ca. 2200/2150–2050/2000 BC);[59] while Broodbank (2008: 68; Doumas 1988: 28) sees the ECy III period at least as problematic. The desertion of smaller sites and the increased interest in fortified sites may have been the result of local conflicts, but evidence for the presence of the ATN may provide more specific motivation.

The situation in Kolonna on Aegina was somewhat of an exception to the problems on the Aegean islands (Niemeier 1995a).[60] Although it experienced repeated destructions, it was able to recover rather rapidly each time. In EH II (town III), the settlement had possessed a corridor house, the Weisses Haus, but in the next phase of the settlement (town IV), the Weisses Haus lay in ruins and a smelting furnace was installed in it. In EH III, the settlement was again completely rebuilt (town V), with impressive fortification walls; single-story, three-room houses were set side by side in groups between streets, indicating the existence of planning and a strong central authority. Town V was destroyed by fire, but it too was rebuilt. The fortification wall of Town V was reconstructed as an outer wall, and an inner wall was built, with two gates flanked by rectangular towers. In the succeeding level (town VII, MH I), hidden walkways and dog-leg gateways were added to the fortifications, and successive rebuildings continued to add to their sophistication. In Middle MH II (town IX) the settlement expanded beyond the fortifications with a fortified suburb; when the suburb was attacked and destroyed at the end of town IX, the inner wall and the wall of the suburb were strengthened (town X, MH III). Such impressive fortifications were unique in the Aegean of this period (Niemeier 1995a: 75).[61] The continuation of maritime contacts, attested by imports of Cycladic and Minoan pottery as well as by imitations of Minoan Kamares ware, was also unusual.

Broodbank (2000: ch. 10) discusses a number of explanations (models) that have been offered to account for the situation in the Aegean: invasion, suggested by the presence of fortified sites and ATN ceramic features; world-systemic disruption,

radiating from the problems in Mesopotamia and Egypt (Sherratt and Sherratt 1991; Weiss 1993, 1997; Weiss *et al.* 2000); a degradation of the land and/or a sudden period of drought, both of which did occur, especially in Mesopotamia, west Asia, and Egypt, as well as at sites as far away as Iberia; a wave of epidemic disease (McNeill 1976: 79–80); and local conflicts. However, he rejects all of these explanations, suggesting instead a maritime model: the introduction of larger, sail-driven ships from the east (Byblos ships), for which there is good evidence in portrayals on EM III–MM IA seals of large sailing ships (Marinatos 1933; Hutchinson 1962: fig. 15; Platon, Pini, and Salies, 1977; Sbonias 1995; Krzyszkowska 2005). These new large ships drove islanders to abandon small sites and congregate in large numbers on islands with harbors capable of handling them. Broodbank's explanatory model does not, however, account for the widespread local destructions – people were not simply moving peacefully to more convenient harbor sites – or for the Mediterranean-wide occurrence of disruptions. In fact, the eastern ports from which these ships would have been operating had already been destroyed, and the imperial powers that would have fed the chain of trade had collapsed.

Mainland Greece

A number of EH I sites on the mainland were destroyed or abandoned at the end of EH II, as was the House of Tiles at Lerna. For three or four centuries after these destructions (EH III–MH II), life on the mainland was characterized by small buildings requiring little skill in construction and with little evidence for specialized function. Metals were scarce, craft specialization existed at only a few sites, and there was a decline in contacts with the Cycladic islands and a complete break in contact with Crete. Life reverted to a simpler, subsistence level. Asine, a village on the coast of the Argolid, provides a well-published example (Nordquist 1987). Asine had 300–500 inhabitants, no fortifications, no evidence of central authority, and no specialized workshops. Its people were less long-lived, shorter, and slighter than Middle Helladic Greeks as a whole. There were some variations in gift offerings in burials, but nothing to indicate remarkable wealth. The people were, however, in contact with neighboring mainland settlements, and possessed some imports.

The attacks at the end of the third millennium, from whatever source, severely disrupted the pattern of development in Greece, marking the transition from EH II to EH III. The destructions were traditionally attributed to the arrival of newcomers, perhaps Greek speakers from the north (Caskey 1971; Hood 1986). However, in a comprehensive study, Forsén (1992) showed that not all the destructions occurred at the same time, nor did they necessarily arise from the same causes; she thus finds no evidence for an invasion, a view now generally accepted (Pullen 2008).

A possible cause for some of the destructions may be found in attacks by Anatolians, who moved on from the islands to the mainland. In addition, some evidence suggests environmental degradation brought on by excessive land clearance on hillsides in EH II with the introduction of plow agriculture (Manning 1997: 152–3). A hungry population may have risen up against its leaders, ritually killing the buildings themselves, and killing or driving out their occupants. Seen in the light of the widespread evidence for an aggressive expansion of the ATN, and for climate change and drought that occurs

across the Mediterranean at roughly this time (ca. 2200 BC) (Weiss 1997), the problems in Greece may well have been part of a wider pattern (D.E. Wilson 2008: 98; Broodbank 2008: 69; Pullen 2008: 37).

Crete

In Crete, the transition from Early to Middle Bronze does not appear to have been accompanied by the same degree of upheaval as occurred on the Greek mainland and in the Aegean islands, although problems with Cretan chronology make it especially difficult to judge the situation (see Watrous 2001: 180–2; Momigliano 1991; Knappett 2007: 216–17).[62] Evidence for a crisis in Crete appears near or at the end of the EM IIB period when many sites were destroyed or abandoned. Among these were Myrtos/Pyrgos (Cadogan 1977/1978), Myrtos/Fournou Koriphi, and the "Red House" and the "West House" at Vasiliki[63] (which were formerly interpreted as one large "palatial-type" building, the "House on the Hilltop"). Malia, Gournia, and Mochlos underwent changes at the end of EM II or the beginning of MM I. Several communal tombs in the Mesara also have gaps in use (Watrous and Hadzi-Vallianou 2004: 251). In fact, evidence for an EM III occupation in the Mesara is so slight that the excavators have omitted the period from the area's chronology; admitting that they may have failed to recognize EM III material, they see this in itself as evidence for a lack of significant occupation (pp. 251–2). The problems in the Mesara extended into MM IA with continued rural abandonment (p. 252). The port of Kommos was deserted in EM II (Betancourt 1990: 27).

In the north central part of the island, at the cemetery at Archanes-Phourni, Tholos E also shows evidence of a gap in usage after the rich deposits in EM IIA, which included materials attesting contacts with neighboring regions in the Aegean and even Egypt – gold, bronze, hippopotamus ivory, 8 seals, and 20 bone amulets. When use resumed, materials dating to MM IIB included hitherto unknown items, attesting new areas of contacts – a necklace of amethyst beads, probably from Egypt; a seal ring; two cylinder seals, and a larnax fragment bearing a Minoan Linear A inscription (Panagiotopoulos 2001a; 200lb). Other tholoi in the cemetery show a similar gap in usage between EM II and MM IA, with no evidence for an EM III use. Watrous (2001: 179–80) saw an island-wide decline at the end of EM II, and Weiner (2006: 2) suggested the cause may have been an area-wide earthquake that also affected Knossos.

There is, however, some conflicting evidence. Schoep dates the early development of "palatial" features in elite buildings at Malia (Quartier Mu, Chrysolakkos) to EM III, and sees these as the first stages in the development of the early large courtyard buildings, the so-called First Palaces, and as testaments to continuing prosperity. But – and here the problems in chronology become apparent – in many cases, the boundary between EM III and MM IA is not clear, as Schoep seems to acknowledge by her occasional use of the extensive designation of EM III–MM I for these early "palatial" features. There is, however, other evidence for continued prosperity at Knossos, where extensive preliminary terracing was already carried out on the site of the later palace in EM IIA, and well-built house walls and a paved ramp leading to the hill top that was the site of the later palace were constructed. MacGillivray remarks that this clearance for the Royal Road would have "required either a very great deal of common good will on

the part of those forced to relocate or a leader with an extraordinary amount of power" (1994: 51). Archaeologists tend to see these indications of urban planning and large-scale projects as precursors of the first palace.

The technology of pottery-making in Crete offers evidence of achievement in EM III and of continuity into MM IA. Scientific analysis of the pottery typical of EM III, East Cretan White-on-Dark Ware, has demonstrated that its production required specialized knowledge and that it was distributed in large quantities in a pattern of intra-island, and possibly inter-island, exchange (Day, Relaki, and Faber 2006). Moreover, certain styles used in the Early Minoan, notably Kamares ware, continued almost unchanged in Middle Minoan, being seen as its hallmark pottery. Analysis has now shown that Kamares ware, long thought to have been produced almost exclusively at the palatial centers of Knossos and Phaistos, was actually produced at a number of smaller sites in south-central Crete and imported to the palatial sites (Walberg 1983), while clear evidence for its production in palatial centers is lacking. All this argues against a large gap in occupation and a decline in skills.

At this time, there is considerable evidence along the north coast of Crete for the arrival of settlers from Anatolia, the islands, and the east, which suggests that the island was seen as a relatively stable refuge. Watrous (2001: 196) suggests that these newcomers may have been escaping destructions in Anatolia and Syro-Cilicia – Kültepe, Tarsus, Ebla, Ugarit, and Byblos were all destroyed by fire in this period, and there are few signs of a recovery of trade at these eastern sites until about 1950 BC. It was argued above that refugees also arrived from the Cycladic islands. Such refugees would have brought with them new customs and technological knowledge.

Evidence for continuity of culture and continuing intra-Aegean maritime contacts in EM III–MM IA was seen in the discovery and excavation, begun in 1996, of Chrysokamino, an EM III metallurgical site in which smelting was the main activity (Betancourt 2006). Betancourt argues that it was part of a large scale, organized system of production (2006). The copper smelted at Chrysokamino was brought by sea from Kythnos and Laurion, according to lead isotope analysis (Gale and Stos: app. C, pp. 299–319, in Betancourt 2006), and the installation at Chrysokamino carried out only the smelting. But the site came to an end in EM III, and, given the uncertainty of that period designation it does not seem to offer evidence for continuity into MM IA.

Over all, painting a generalized picture of decline or collapse in all areas of Crete at the end of the Early Minoan is very tempting (Wiener 2006: 2; Watrous 2004), yet in parts of the island there were signs of continuity and development. Pottery-making in particular shows signs of continued activity at a high level. At Malia, there was a gradual increase in signs of status in private tombs, and increased monumentality in private and public buildings, presaging the evolution of the first "palaces." Perhaps the best evidence for the survival of Crete through the end of the third millennium lies in the rapid development of these palaces.

The troubled conditions of the eastern Mediterranean do not appear to have extended to Iberia in the far west, where any significant degree of long-distance contact with the east had yet to be established and local conditions were still the predominant factors. This would change with the revival of the Late Bronze Age, in which Egypt at first played a leading role, as it had in the collapse.

Notes

1 www.cbrl.org.uk (accessed May 24, 2011).
2 See http://www.jewishvirtuallibrary.org/jsource/Archaeology/timna.html (accessed March 3, 2011).
3 The exact translation of the Sumerian term *en*, as well as the sphere of the official bearing that title, is uncertain; its usual meaning is "lord," not "king," but a bilingual tablet identifies the ruler as a *malikum*, West Semitic for "royalty" (see Matthiae 1980: 182–5; Pettinato 1991: 71–7).
4 Whether the destruction was carried out by Sargon of Akkad, or by his grandson Naram-Sin, is a matter of dispute; but perhaps it was the work of still another (Astour 1992).
5 http://chronicle.uchicago.edu/001019/ur.shtml (accessed March 3, 2011).
6 http://www.museum.upenn.edu/new/exhibits/galleries/ram/ramconservation.shtml (accessed March 3, 2011).
7 http://www.britishmuseum.org/explore/highlights/highlight_objects/me/q/queens_lyre.aspx (accessed March 3, 2011).
8 On the Perseus web site: See http://www.perseus.tufts.edu/cgi-bin/ptext?doc=Perseus%3Atext%3A1999.01.0239;layout=;query=chapter%3D%2356;loc=11.1.1.
9 Healy (1978) gives an account of other uses of placer mining and panning, but still finds any connection between the legend and the working of alluvial gold deposits "improbable."
10 For its use in Afghanistan, see Stech and Pigott (1986: 46), citing Francfort, personal communication.
11 The various possible meanings of the story, including actual use of the process in mining, are discussed at length in Lordkipanidze (2001).
12 http://en.wikipedia.org/wiki/Priam's_Treasure#The_treasure (accessed July 2, 2011).
13 See the British Museum site http://www.britishmuseum.org/explore/highlights/highlight_objects/me/c/cuneiform_tablet_and_envelope.aspx (accessed March 4, 2011).
14 Mellaart (1969) tentatively suggested the arrival of steppe pastoralists from the northwest, cited by Yakar (1981), who suggests the possibility of natural factors – drought or earthquake – in setting in motion population movements; the use of seaborne attacks seems to rule out pastoralists.
15 http://www.travel-to-syros.com/page.php?id=3&back=place.php?id=7
16 Recently excavated by the Izmir Region Excavations and Research Project (IRERP), under the direction of Hayat Erkanal, see Erkanal and Günel (1994).
17 The distribution of Lefkandi I ceramic types in mainland Greece includes, besides Lefkandi, Manika on Euboea; Pefkakia on the coast of Thessaly; Raphina in eastern Attica; Eutresis, Orchomenos, Thebes in Boeotia; and Kolonna in Aegina; see http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/8.html#3 (accessed March 4, 2011).
18 The gold jewelry of the "treasure" of the Yellow period, Athens, National Archaeological Museum. http://www.fhw.gr/chronos/02/islands/en/gallery/technology/me11f.html (accessed July 2, 2010). This site also has two pictures of articles from the Troy treasure, and two silver articles from Syros.
19 Deposits from Cornwall and the Erzgebirge are from the Paleozoic period and thus are as old as most of the bronzes from Troy, sufficiently old, but there is no cultural link with Cornwall, and no evidence for the exploitation of tin deposits in prehistoric times in the Erzgebirge.
20 http://ancientneareast.tripod.com/Judaidah.html and http://oi.uchicago.edu/research/projects/amu/judaidah.html (both accessed April 15, 2007).

21 Claims of evidence for tin production at Göltepe in the Kestel region of south-central Anatolia, reported by Yener and Vandiver (1993a), disputed by Muhly (1993), with a reply by Yener and Vandiver (1993b), now seem unlikely.
22 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/4.html#28 (accessed March 4, 2011).
23 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/4.html#20 (accessed May 24, 2011).
24 http://cat.une.edu.au/ (accessed May 24, 2011).
25 Anticipation: Mellink (1991: 172–3; 1993); flight for refuge after attack: Dikaios (1962: IV:1A: 202); so too Wilson (1999: 96).
26 The term *facies* is a technical term used by some (but not all) archaeologists to indicate that this material assemblage occurred only in some parts of the island, concurrently with Early Cypriot pottery, and thus there is reluctance on the part of some to labeling it a "culture."
27 This is debated, with Webb and Frankel (1999) arguing in its favor, and Knapp (2008: 110–11, 129) favoring an internal development he calls "hybridization."
28 Three objects are of tin bronze; two were probably imported as finished pieces from Anatolia, but the third seems to contain Cypriot copper; it is, however, the only Cypriot tin bronze object found in Cyprus before early Middle Bronze Age (ca. 2000 BC) (Webb *et al.* 2006: 274).
29 While some seek an explanation in terms of indigenous development (Manning 1993; Knapp 2001; Kassianidou and Knapp 2005: 231), most scholars now accept the arrival of at least some new people, and arguments about the Philia *facies* center upon the comparative weight placed on the various innovations and upon the motive force behind their adoption – were these changes set in motion by Cypriots – an elite anxious to acquire status-enhancing objects (Manning 1993) – or by Anatolians?
30 For a catalog of sites, see Webb and Frankel (1999).
31 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/3.html#15 (accessed March 4, 2011).
32 Thus, Pullen (2008: 34) suggested a chiefdom organization; contra, Wiencke, who remarks that "There is no convincing reason to identify any of the seal designs as specifically administrative, or indicative of contents or of quality control" (1989: 505).
33 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/3.html#15 (accessed March 4, 2011).
34 This does not necessarily rule out their previous involvement in a silver-trading system.
35 Shank (2005) claims a number of vessels with "similarities" to the ATN group in sites on Crete, but only the one pot found at Hagia Photia is a convincing ATN import.
36 On the other hand, Wilson (2008: 98) invokes a possible drought to explain the island dislocations and the apparent abandonment of some sites.
37 http://archaeometry.gr/oldv/symposium2003/pages_en/abstracts/papers/metals/metal2.htm (accessed June 15, 2008).
38 http://www.uncg.edu/~jssoles/Mochlos/first.html (accessed June 16, 2008).
39 The gold could have come from a number of places: Syria, Egypt, or Nubia, the northeast Aegean, the Balkans. The Greek word for gold, *chrysos*, is, however, of Semitic derivation (Colburn 2008: 206: n. 37).
40 See http://www.uk.digiserve.com/mentor/minoan/phourni2.htm (accessed March 4, 2011).
41 http://projectsx.dartmouth.edu/history/bronze_age/index.html (accessed May 24, 2011).

42 This was confirmed only in 1964, when John Sakellarakis uncovered the first evidence of a palatial-type building at the Tourkoyeitonia site. Since 1966, Archanes has been excavated by the Greek Archaeological Society under the supervision of John Sakellarakis and Efi Sapouna-Sakellarakis (1991, 1997).
43 See Chapter 3 and http://www.uk.digiserve.com/mentor/minoan/anemospilia.htm (accessed 4 March 2011).
44 The Kythera Island project, Cyprian Broodbank and Evangelia Kiriatzi, http://www.ucl.ac.uk/kip/introduction.php (accessed June 22, 2008).
45 So also http://projectsx.dartmouth.edu/history/bronze_age/index.html (accessed May 24, 2011).
46 Holloway (1976), however, suggested a date in the beginning of the second millennium.
47 All the Gaudo material comes from burials; the settlements used a different style of pottery, and different metal types (Giardino 2000b).
48 Ross Holloway, paper delivered at the I Congresso Internationale di Preistoria e Protostoria Siciliane, Corleone, July 1977, see http://brown.edu/Departments/Joukowsky_Institute/resources/papers/classicalmed/report.html#f8 (accessed March 4, 2011).
49 The site was selected for study from 145 archaeological sites in the Pyrite Belt (Nocete 2006: 647).
50 Los Millares, about 17 kilometers north of Almeria, was first excavated by the Belgian engineer Luis Siret, in 1891 and 1892; the necropolis was re-excavated by Georg and Vera Leisner (see Leisner and Leisner 1943; Arribas and Molina 1984). The most recent excavations took place under the direction of the Departamento de Prehistoria de la Universidad de Granada, directed by Antonio Arribas and Fernando Molina, from 1978–81. See http://millares.almeriaenred.com:81/millares/ (accessed May 24, 2011). The following is a tourist web site, but has some useful information: http://www.megalithomania.com/show/trip/12/3 (accessed March 4, 2011).
51 In opposition to this, Chapman (1990: 260–5, figs 58, 59) expands on the near impossibility of maritime contacts thanks to the "out-of-sight-of-land" distances and the effects of the Mistral winds. His argument is, however, based on Braudel's analysis of sixteenth-century BC ships and shipping, and Waldren (2002: 160–3) seems to counter his pessimistic conclusions effectively.
52 Recent studies by Jose Carrión and other scholars at Murcia University (2007) have proposed that Argaric culture itself fell victim to environmental degradation at the *end* of the second millennium. This is suggested by the presence of significant amounts of charcoal in the pollen sequence, a sign that people were setting fires to clear the forests for mining activities and grazing. As a result, the diverse forest ecosystem was replaced by fire-prone Mediterranean scrub. This appears to have augmented an on-going climate change in which conditions had been becoming increasingly arid from the fourth millennium, as indicated by a reduction in forest cover, the appearance of plants adapted to dry conditions, and a drop in lake levels. But natural climate change was not the critical factor; rather, it was man-made burning that caused the collapse of agriculture and pastoralism, the foundation of the Argaric economy.
53 http://www3.uakron.edu/titris/index.htm (accessed March 4, 2011).
54 http://www3.uakron.edu/titris/Photogallery.htm (accessed March 4, 2011).
55 http://gozips.uakron.edu/~matney/aDNA.htm (accessed March 4, 2011).
56 A climate change seems ruled out, and likewise,environmental degradation – while it occurred over the course of the extension of settlement and of agricultural use – does not seem to have been determinative.
57 http://www.tayproject.org/TAYages.fm$Retrieve?CagNo=2134&html=ages_detail_e.html&layout=web (accessed March 4, 2011), since AD 2000, excavations of harbor by

Erkanal, http://www.archaeology.org/0907/underwater/turkey2.html (accessed March 4, 2011).

58 See the web site of Project Troia, http://www.uni-tuebingen.de/troia/eng/index.html (accessed March 4, 2011).

59 This is still his position in http://projectsx.dartmouth.edu/history/bronze_age/lessons/les/4.html (accessed May 10, 2010).

60 http://www.oeaw.ac.at/sciem2000/Pr15main.html (accessed May 9, 2010).

61 The walls of Troy VI were not earlier, and their towers were added in a later phase.

62 The revised chronology suggested by Manning (1995), adapted by Watrous (2001: 221), and by Rutter (2008: Lessons 5 and 10), seems the best current resolution of this complex problem. According to this revision, the EM II period is lengthened to ca. 2700–2200 BC, and EM III is shortened to 2200–2100 BC. Thus, EM II corresponds to the Egyptian First Intermediate Period and EB IV in the Levant, and the rich tombs at Mochlos, which had been dated EM II/III or EM III on the old chronology, are placed in the EM IIB period. This revision allows the designation EM IIB to be more fittingly applied to a time of widespread prosperity in the Mediterranean, coincident with Troy IIg, EB III in the Levant, and the Sixth Dynasty in Egypt; similarly (Watrous 2004).

63 The two are datable to slightly different periods within the EM IIB phase, Rutter (Lesson 5 at http://projectsx.dartmouth.edu/history/bronze_age/index.html (accessed May 24, 2011)).

Chapter 6

The Middle Bronze Age (2000–1550 BC): Recoveries

Recovery from the troubles at the end of the third millennium occurred variously in the various parts of the Mediterranean. Egypt, however, was in many ways central to the recovery of the other Mediterranean cultures: the relatively stable period of the Egyptian Middle Kingdom (2106–1786 BC)[1] was concurrent with, and contributory to, the development of its Levantine trading partners, to early developments in Cyprus, and to the development of the first monumental courtyard ("palatial") buildings in Crete. But the picture is not so simple. Egypt itself disintegrated again (in the Second Intermediate Period), as a competing political power arose in the Delta, the Hyksos. And somewhere in the midst of all of this must be placed the famed volcanic eruption of the island of Thera, again with no agreed upon date and few really identifiable consequences beyond the island itself.

Egypt in the Middle Kingdom

Egypt's recovery was by the solid tradition of unified government that had existed before the collapse. In 2033, Mentuhotep II, the fifth king of the Eleventh Dynasty, took the first steps in bringing the country together by a process that rested on an ideological foundation: a stress on his own divinity as ruler, and the construction of new temples. But the new state was not to be an exact revival of the old. The breakdown had loosened traditional strictures on ordinary Egyptians, and the revival of central authority required new accommodations for this new situation. One step in this direction was the extension of Osirian beliefs in life after death, and the rituals that assured this, from the Pharaoh to ordinary people, a move reflected in the construction of Mentuhotep's mortuary temple at Deir el-Bahri (Callender 2000: 153).[2] Mentuhotep also acted to reestablish Egyptian influence in the outside world with a series of campaigns, including an expedition to Libya, a rich source of gold, copper, turquoise, and amethyst as well as of exotic animals and plants and building stone

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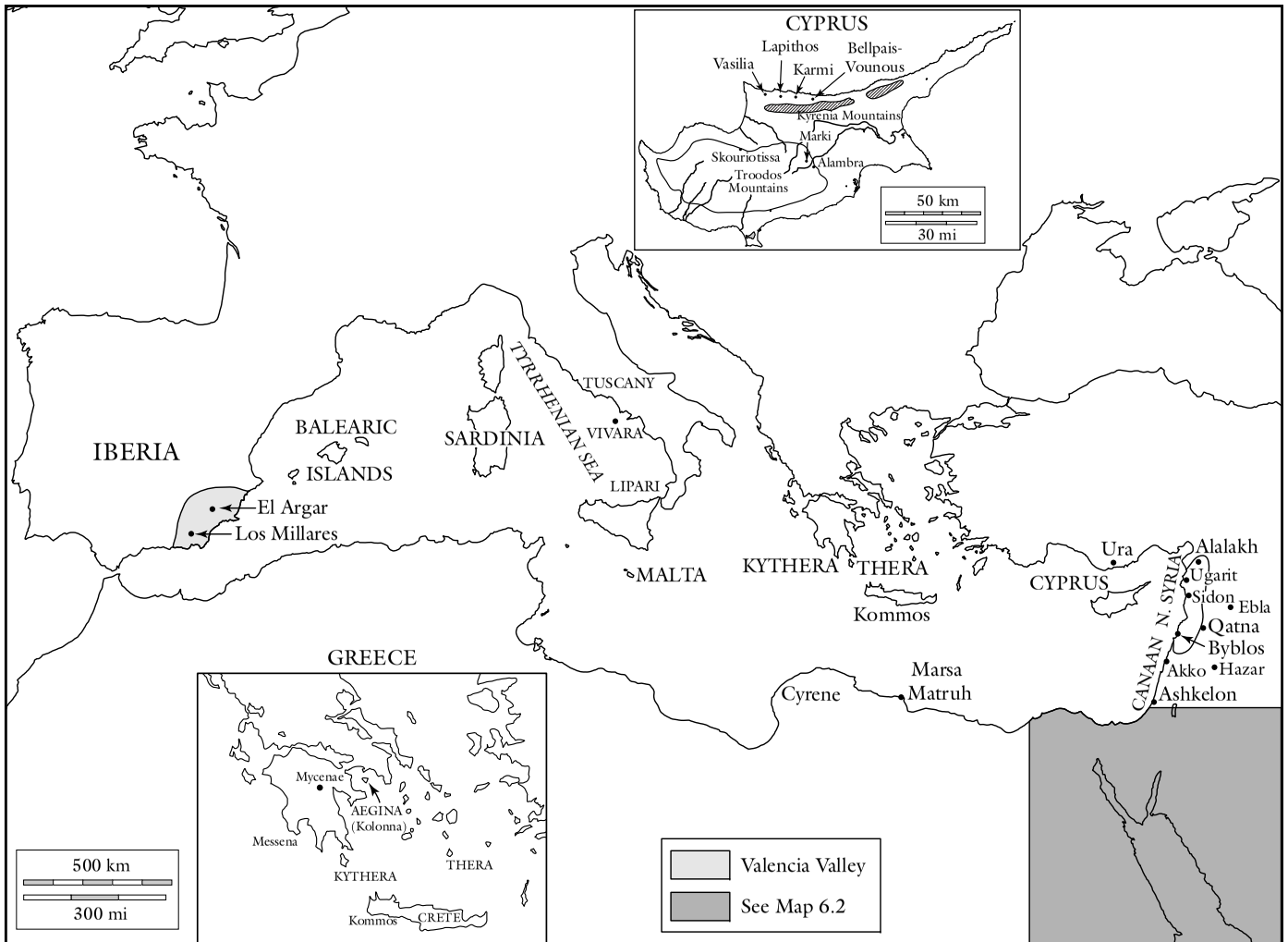
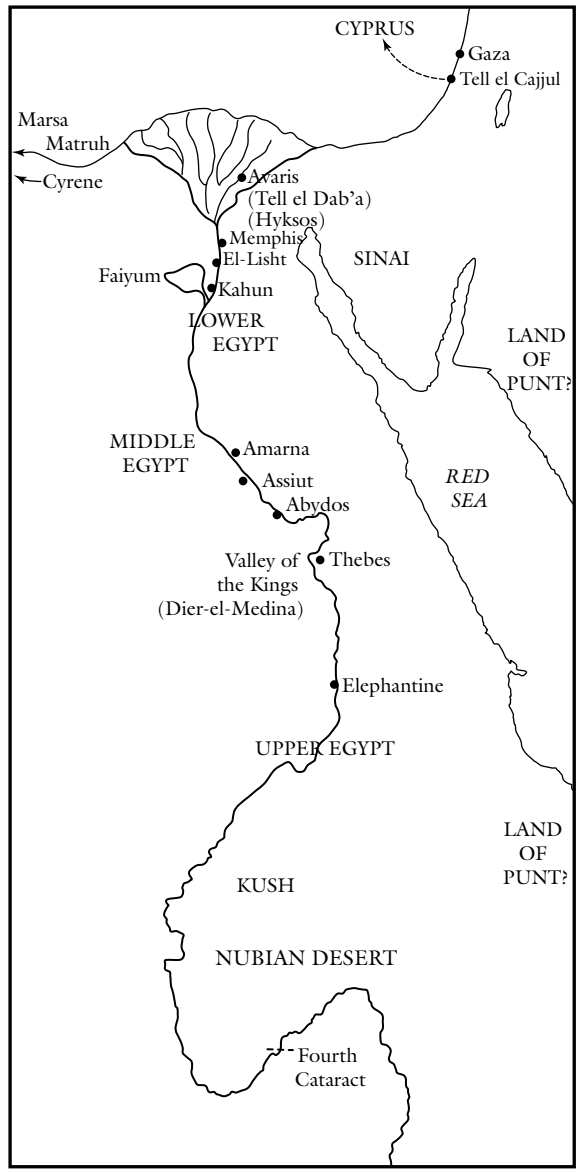


Map 6.1 Fertile Crescent, Cyprus, and Greece.



Map 6.2 Egypt.

(Callender 2000: 160). More peaceably, he took a first step in reopening connections with Lebanon by sending a steward to that country for cedar.

After brief rules by Mentuhotep III and the obscure Mentuhotep IV, a new dynasty began, the Twelfth Dynasty, as rule passed to the vizier, Amenemhat I (ca. 1963–1934). Because of the crucial changes that he inaugurated, he is often credited with the beginning of the Middle Kingdom. Among these changes was the transfer of the capital from Thebes to a new town (still undiscovered), in the Faiyum region, near the Lisht necropolis, a move probably intended as part of a program to curb

the power of the local nomarchs, who were reluctant to give up the independence that they had enjoyed during the First Intermediate Period. Amenemhat established his capital there and instituted an irrigation scheme to provide new farmland in the Faiyum. He was also aggressive in extending and establishing Egyptian power over its neighbors. In Nubia, where he carried out two expeditions, he replaced earlier sporadic raiding, trading, and quarrying efforts with more organized conquest and colonization and established Egypt's formal southern border at the fortress of Buhen near the second cataract, setting up a garrison. To the west, he organized an expedition to an oasis in the Libyan desert. To the north, he carried out campaigns against the infiltrations of Asiatics in the Delta and strengthened the region by the construction of the Walls-of-the-Ruler (Callender 2000: 159),[3] which play a part in the literary compositions of the time (the *Story of Sinuhe* and the *Prophecy of Neferty*).[4]

Perhaps as part of his efforts to control Canaanite infiltrations, Amenemhat also established a settlement for Canaanite workmen at Tell el Dab'a (Avaris) in the eastern Delta. The inhabitants may originally have been intended to serve on mining expeditions in the Sinai (Bietak 1996: 5, 10–21), but some soon became involved in trading activities. The site was a strategic one, on the Pelusiac branch of the Nile, providing access to the Mediterranean and to the land route from the northern Sinai, the "Horus Road," and in time, the new establishment developed into an important center of trade. The first settlement was set up with geometric regularity, with double rows of 12 equally sized houses separated by broad streets half as wide as the houses; the new occupants, however, soon imposed their own ideas on the site, infringing on the public area of the street to extend their domestic space. In a sense, their actions foreshadowed the future of Tell el Dab'a, which eventually became the center for the rise of an independent Canaanite power – the Hyksos – that for a time once again broke the unity of Egypt.

Amenemhat made no efforts to extend military control beyond the Sinai, relying instead on diplomatic and commercial relations with Byblos and the other trading states of the Levant (Redford 1992: 80), and caravans and sea travelers passed between Syria and Egypt exchanging cedar and ivory for Egyptian goods (see Warren 1995: 1–2; Bietak 1996).

Amenemhat, well aware of the new freedoms that had spread among the population during the years of chaos in the First Intermediate Period, did not try to reassert the absolute power of the pharaohs of the Old Kingdom, even as he bolstered his authority by asserting his divinity and by manipulating the powers of the old nobility to insure loyalty. However, he portrayed himself as a new kind of divinity, one who watched over his people, who listened to their complaints, who saw to it that those who worked for the country, especially its growing class of new, middle-class officials, also shared in its growing increases in wealth. This new approach was graphically portrayed in the royal iconography, in which he presented himself as a serious, care-worn figure with great ears to hear the complaints of his people.

But the old nobility was apparently not entirely assuaged, for Amenemhat was assassinated. His son and successor, Senusret I,[5] whom he had presciently made co-regent before his death, ruled as one of the most powerful kings of this dynasty. He built extensively throughout the country, updating and rebuilding existing temples in stone. By setting up a monument in most of the main cult sites in the country he

worked to undermine the power of local temples and priests. He began work on the large temple at Karnak, and rebuilt the temple of the funerary god Osiris in Abydos, reemphasizing the importance of this cult, which led to a democratization of the afterlife.

At the death of Senusret I, rule passed to his son, Amenemhet II (1901–1866, with a brief co-regency). The new Pharaoh's crucial accomplishment was to reinvigorate maritime communications that were recovering from the break during the First Intermediate Period. To that end, he conducted a number of both military and commercial expeditions. Most valuable for an understanding of seafaring at the time, he left unparalleled details about some of these voyages recorded in the Mit Rahina inscription, an excerpt from his annals inscribed on a red granite block that was later reused and thereby preserved as a pedestal for a statue of Rameses II in a temple at Memphis (Malek 1992; Altenmüller and Moussa 199l; see Marcus 2007). The inscription records the activities of only one year, including military operations, dedications, and cargoes of goods brought back to Egypt in the course of two to six voyages. It provides almost the only information about the crucial Egyptian contributions to renewed maritime activity in the eastern Mediterranean as that activity entered its most dynamic period after a significant hiatus.

The expeditions recorded in the Mit Rahina inscription combined both military and commercial elements, probably in the form of raids and shakedowns for tribute, and the inscription details a mixed cargo. Luxury items including amethyst and other semi-precious stones; 4 ivory furniture parts, perhaps inlays; 54 items of "Asiatic household goods," a box, 13 combs, 16 bronze, gold, and silver (perhaps inlaid) daggers, and 21 bronze and ivory daggers; seals of stone and ivory; gold, and silver; aromatic oils and resins; coriander; fig and sycamore trees, and other unidentified plants and fruits. Raw materials included a good deal of copper (implements, weapons, and scrap), as well as malachite; marble; emery; grinding stone sand; and 231 trunks of cedar, which must have made up the bulk of the cargo. Another large part of the cargo was made up of human beings, however: in one case, 1,554 Asiatic prisoners, in another 65 Asiatic men and women, most probably destined for slavery.

Helck (1989, see Beal 1992) suggested that the military expedition (s) included attacks on Alasya (Cyprus) and Ura in Cilicia. Marcus (Marcus 2007: 147) is skeptical of this, questioning the very existence of Cypriot settlements that were worthy of conquest. But Kitchen (2007: 3–9) argues that a process of elimination based on known geographical identifications leaves little doubt that Alasya in this text is Cyprus. While the widespread disruptions that occurred at the end of the third millennium had brought Cypriot maritime connections to a temporary halt, from the early second millennium – about the time of Amenemhet II – the metals trade in Cyprus was revived, and much expanded, with the northern ports of Lapithos (Balthazar 1990: 149–62) and Bellpais-*Vounous* (Swiny 1989: 26–8), sharing in the revival of Levantine–Egyptian trade. Lapithos, some 40 kilometers from the nearest copper deposit at Skouriotissa, grew wealthy from metalworking and maritime trading. Its rich finds fall into three classes: tools, weapons, and two bronze pins. The tools and weapons are mainly of arsenical copper, with very few tin bronzes, while the pins are mostly of high tin bronze with little arsenic. About 70 percent of the objects are made of copper smelted from Cypriot ores, while the bronze pins may have been made of

imported pre-alloyed bronze or brought in as finished objects. In contrast, the rural site of Alambra, which had nearby copper sources and practiced agriculture, carried on metallurgical production on a smaller and less sophisticated scale. It too had two high-tin bronze pins, but these were not of Cypriot copper; they resemble in their isotopic composition some of the Trojan bronzes excavated by Schliemann and ascribed to Troy II–V and had probably reached Cyprus by way of the ATN.

Other evidence also attests foreign contacts and imports in Egypt at this time. The most direct is that provided by the Tôd treasure, a dedication made by Amenemhet II in four copper-alloy chests placed under the floor of the Twelfth Dynasty Montu temple at Tôd, originally dedicated by his father Senusret I.[6] Two of the chests bore the names of Amenemhet II. The contents span a number of countries and periods, including Anatolia, northern Syria, and Mesopotamia, and may have been collected by "a hypothetical Syrian prince . . . over a period of years" (Maxwell-Hyslop 1995: 243).[7] The bulk of the items are silver, which appears in the form of ingots and crude chains but also in jewelry decorated with granulation,[8] as well as 153 cups, of four different types, and possibly origins, carefully folded in quarters to fit into the boxes, but now carefully restored to their original form. There were also a few gold objects; beads or cylinder seals of various Near Eastern origins, dating back to the third and the beginning of the second millennium BC; and over a thousand raw and unfinished pieces of lapis lazuli, indicating connections with Afghanistan. It is possible to connect this dedication with the Mit Rahina inscription (lines M18–21), which report the return of two ships from Lebanon with cargoes including 1,676½ *deben* of silver,[9] and the endowment of a statue of Amenemhet II in the funerary cult temple of Senusret II (lines M5–6), or the endowments in the temple of Montu (lines M9–10), although the latter mentions only copper. The silver probably came originally from Anatolia (Pierret 1994; Menu 1994; Maxwell-Hyslop 1995); it does not occur in the Lebanon, but quantities of silver are recorded in texts from Ebla in the twenty-fourth century and in Mari in the eighteenth, both crucial points on transit routes, and the Lebanese ports would have functioned as transshipment points.

The Levantine Coast

During the Egyptian Middle Kingdom, the Levantine coastal cities, most of whose population had resorted to a nomadic life at the end of the third millennium, recovered and flourished as they participated in the revived Egyptian trade network (Negbi 1994: 84–8; Watrous and Hadzi-Vallianou 2004: 257–8). Stager interpreted the process of revival as an instance of "Port Power," in which, rather than primary producers creating the market, traders on long-distance routes are in control, able to stimulate the development of products in the interior to feed to the ports. Since only the traders had all the information – the costs of transportation and the price differential between sellers and potential buyers in Egypt – this was very profitable for them (Stager 2001; for an alternative view, see Ilan 1995).

There were at least 10 seaports or anchorages on the voyage from Akko to Ashkelon, each linked to inland agro-pastoral communities that funneled the region's main products of wine and olive oil, along with timber, charcoal, resins, limestone,

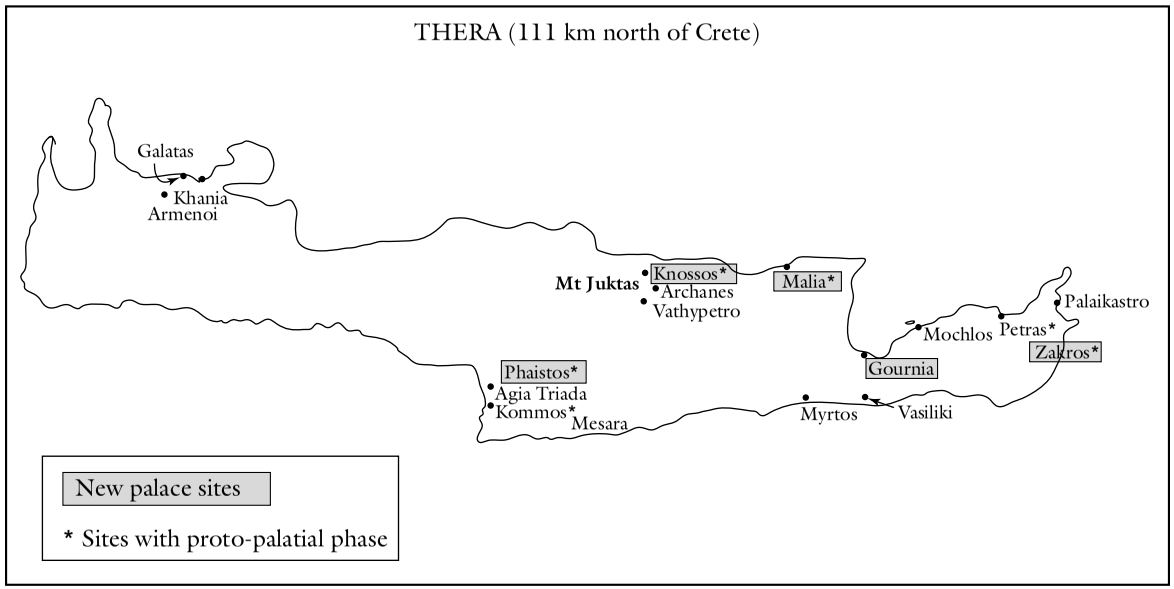
and chalk, to the coastal port (Stager 2001: 360). On the northern coast, Byblos especially profited by Egypt's continuing need for timber for its vast building projects and for the resins and scented oils needed for the burials of nobles and royalty. Other luxury items – frankincense and myrrh from Arabia, lapis lazuli and tin from Afghanistan and the east, silver and semiprecious stones from Anatolia – were carried on newly revived trade routes through inland trading centers, such as Mari,[10] to coastal ports, such as Ugarit/Ras Shamra and Byblos, for export. It has been suggested that the silver vessels in the Tôd treasure, and Minoan Kamares pottery discovered at Ugarit, Qatna, Hazor, and Abydos, had reached Egypt and the Syro-Palestinian hinterland by way of the major ports of the northern Levant (Negbi 1994: 85, with references).

Middle Minoan Crete

Crete, however, provides perhaps the most dramatic picture of recovery from the general collapse of the end of the third millennium. Following the picture as Watrous (1994) has portrayed it, the primary cause of the general collapse in Crete was increasingly arid conditions, which are in fact attested for many other areas in the eastern Mediterranean as well at that time. But Crete, unlike most of the Levant, has many karst springs,[11] which would have provided a reliable source of water and attracted new settlers, transforming small communities into large ones. In archaeological terms, Crete became nucleated. Many people who had formerly lived independently in small villages or farmsteads, close to the land, suddenly, and under the compulsion of need, were forced to move to new sites with springs. Divorced from their traditional sources of livelihood, they became dependent upon those who were already well settled, who became wealthier through their control over dependent labor. Watrous, following a model suggested by Carneiro, sees the origins of the state in this type of situation, which he calls "social circumscription" – being physically or economically trapped, by war or other social processes, and integrated into society from below as a lower class (Carneiro 1970; Watrous 2004c: 270).

To express and enhance their status as social differentiation grew, the elite first experimented with the use of imported materials and technology in the building of funerary monuments, as is seen at Malia (Schoep 2002b). There the Chrysolakkos tomb was built in the shape of a Egyptian mastaba, with rounded capping stones of Egyptian type and a corridor that resembles the "corridor chapel" in front of the facade of Old Kingdom mastabas (Watrous and Hadzi-Vallianou 2004: 272; Watrous 1994: 729; Schoep 2004a). Syria provided another architectural innovation in the use of orthostats, or ashlar blocks used as a socle to support walls of mud brick or rubble (Hult 1983: 66–8).

The enhancement of funerary monuments was followed by the building of large community buildings centered on courtyards (see Hitchcock 2003: 33), which provided for gatherings of large numbers of people, probably in ritual performances. These buildings have traditionally been known as the First or Old Palaces, although they were probably not palatial in the sense that the later New Palaces were. The builders applied some of the special ("palatial") features used in the funerary



Map 6.3 Minoan Crete.

monuments to these buildings, such as the orthostats which were used in the courtyard building at Phaistos (MM IB) and later in the west facade of the palace at Knossos (Hult 1983: 67).

One of the most significant architectural borrowings from Egypt has been seen in the choice of crystalline white gypsum for the early courtyard building at Knossos, where it was used to line entrances and to create dramatic effects along various approaches to the palace, perhaps in imitation of the white alabaster and limestone used in Egyptian royal monuments (MacGillivray 1994: 51; MacGillivray, Driessen, and Sackett 2000: 152). Gypsum, which may have been thought to have supernatural properties, was also widely used at Phaistos for floors, benches, and dadoes, and Watrous (2004c: 272) suggests that its use in walls facing the public west courts projected a message of royalty to the viewing public.

A nearby peak shrine appears to have been a necessary element of the ceremonial life of these buildings (Jones 1991). In the case of Knossos, the peak shrine was on Mt Juktas, the impressive mountain that appeared to the Minoans to resemble the head of Zeus, where a sanctuary was probably established in MM IA (Karetsou 1981).[12] The shrine was enhanced with an elaborate complex consisting of 11 rooms on the ground floor, 2 staircases and 1 storeroom in MM I–LM I.[13]

Three monumental, ceremonial courtyard complexes are generally recognized as major Protopalatial sites: Phaistos, Knossos, and Malia.[14]

Protopalatial Knossos

Evidence at Knossos suggests that the beginnings of monumental buildings there occurred in MM IB, but these early beginnings are very fragmentary, since they were overbuilt by the later New Palace (MacGillivray 1994; Driessen 2004). A number of people, following Shaw, prefer to call them "courtyard buildings" rather than "palaces."[15] Among the ruins one of the most important finds was the Hieroglyphic Deposit, a cache of 102 administrative documents discovered under a staircase; it dates to the end of the Protopalatial Period and attests to the use of literacy in the administration in the Old Palace (Schoep 2001; 2004b: 286–8).

Writing, and the administrative system it served (Fiandra 1968; Schoep 1999), were borrowings from Egypt and the Near East (Weingarten 1986: 280–1; see also Fiandra 1968). It was the appearance of script that resembled Egyptian hieroglyphics on seal stones that first attracted Evans to Crete in 1894. The use of Minoan hieroglyphic script first appeared in MM IA–B, and it continued to be used for some half a millennium, until MM IIIB, with examples coming from Malia and Petras as well as Knossos. A second form of script, an early form of Linear A, was found in the Old Palace at Phaistos, dated to MM IIA or perhaps MM IB. Thus the two writing systems had different geographical distributions, with hieroglyphic being used in the north (Knossos, Malia, Petras), and Linear A in the south (Phaistos and the Mesara). Although the two systems used different types of documents, and different number systems, both may go back to a common ancestor since they share a number of signs, both syllabic and logographic. Moreover, the geographical division in their use is not absolute: the hieroglyphic deposits at Knossos included a few documents in Linear A, and the hieroglyphic system itself may contain some Linear A elements, while at Phaistos, a single MM IIB sealing was impressed by a hieroglyphic seal stone.

Still another form of writing appears at Archanes, a site only about 8 kilometers from Knossos that had many palatial features – archives, ashlar masonry, wall paintings, and colored plaster on the floors (Sakellarakis and Sapouna-Sakellarakis 1997) – and is considered by some to have been a palace, although its proximity to Knossos seems to raise some doubt. The script was found on 15 seal stones, on which about 10 different signs are incised. Some of the signs seem to be related to Cretan hieroglyphic signs, but one group has been seen as resembling Linear A (Schoep 1999: 266).

Protopalatial Phaistos

The early monumental courtyard building, or protopalace, can best be seen in the development of the courtyard complex of Phaistos, since parts of the early buildings were not overbuilt in the construction of the Neoalatial phase. Of these early buildings, the entire west facade, the west court in front of it and the associated theatral area, as well as a good part of the west wing (including a suite of rooms usually identified as a shrine) are visible today.[16] A series of large paved courtyards at three levels fronted the west wing, and was entered by two major entrances and at least five minor entrances.

Fiandra (1961–2) interpreted the remains as originally a single, unified building complex, which was carefully planned in the beginning as an architectural unit but lost that unified plan in the course of various rebuildings. She distinguished four periods of construction and reconstruction. The first period (MM IB) consisted in the construction of the south part of the building, the second (MM IIA) in the construction of the northern part, with some modifications in the southern facade. This building was then destroyed by an earthquake. Reconstruction in the third period, after the quake (MM IIB), obliterated the architectural unity of the building as originally planned. This rebuilding was destroyed by a disastrous fire, which also impoverished the inhabitants. A fourth rebuilding (MM IIB (final), MM IIIA?) left few traces after the building of the New Palace.

Phaistos, which used Linear A for its administrative documents, has yielded four flat-based nodules, four roundels, and one sealing on a chest which dates to MM IIB, the time of a great palatial destruction. However, the largest single deposit of Linear A found (by 2003) was discovered at nearby Agia Triada,[17] which is a small complex that has, however, many palatial features, and which in the Neopalatial period seems to have assumed much of the administrative work of that center. The deposits, in two buildings, contained about 150 tablets and 861 nodules (Miller 2003: 21).

Phaistos was also the find-place of the enigmatic Phaistos disk, a unique object with 241 figures, using 45 different signs, that are stamped on both sides of the disk and spiral from the edge to the center. The symbols include a plumed head, a tattooed head, a man walking, an arrow, a beehive, a cat's head, a ram, a bee, a plane tree, and other objects.[18] Its use is not known, and no one has yet been able to provide a convincing decipherment.

In the paved courts west of the main west facade at Phaistos there are three monumental stone-lined, circular pits known as *koulouras*, a feature also found at Knossos. Although they were often identified in the past as storage facilities for grain, Strasser has shown that they could not have been used for that purpose. They were not watertight, and even had they somehow been sealed to create hermetic conditions, once opened for use they were so large that the contents would have spoiled rapidly unless

consumed immediately (Strasser 1997: 81). The discovery of a stone trough leading to the *kouloura* at Knossos, added to the evidence that these structures were not granaries, but probably cisterns, or possibly planting pits for trees (Preziosi 1983: 85). This has left very little archaeological evidence for mass storage in the early courtyard building – only a few pithoi.

Protopalatial Malia

The collection of buildings at Malia – a "courtyard building" and a series of unconnected houses used as family workshops – may be just as representative of the earliest "palaces" as the planned (if not ultimately achieved) unity of Phaistos (Poursat 1996; Schoep 2002a).[19] The buildings were constructed in three major phases. In its earliest phase, EM III/MM IA, the complex seems to have consisted only of a west court, a northwest court, and residential buildings (Schoep 2002).[20] At the start of MM IB a building boom added several houses, a new burial compound, and funerary buildings at Chrysolakkos to the north of the courtyard building, the location for experiments in imported building practices, as discussed above.

The courtyard complex was surrounded by a number of separate building complexes in which the only workshops were found. These include the Crypte Hypostyle, the Magasins Dessenne, Villa Alpha, and Quartier Mu. The best known of these is Quartier Mu (Poursat 1996), which consisted of a number of smaller buildings combining family homes and workshops. Found mostly within the larger residences of Quartier Mu were numerous clay objects with signs of the hieroglyphic script: 9 tablets, 13 medallions, 2 cones, 16 noduli, and several kinds of sealings. The occupants of Quartier Mu were engaged in seal cutting, pottery production, metalworking, and stoneworking. The workers were specialists who were primarily involved in producing status-enhancing items for the elite, rather than as independent craftsmen. Nonetheless, they did not operate within the courtyard complex, or palace, only in close proximity to it, and the degree of palatial control is unclear.

Rutter questions the evidence for the truly "palatial" character of Malia in the Protopalatial period, suggesting that it may represent "a developmental stage at a major site preceding the construction of a unified palatial structure, a stage potentially comparable to the EM III or MM IA situation (s) at Knossos and Phaistos."[21] It may be, or course, that this was the way in which some courtyard buildings were in fact developed.

Protopalatial Kommos

The courtyard complex at Kommos is considered to have been a Protopalace.[22] Its proximity to Phaistos and its natural harbor are in favor of this. It appears to have been only sporadically inhabited until MM IB, when there was a dramatic rise in occupation, as indicated by finds of pottery. At the beginning of MM IIB, an area was leveled for a large platform and the construction of Building AA, a large building organized around a courtyard that is bounded by colonnaded stoas on two sides and had probable storage facilities. Such a building must have been the work of an official authority, and therefore it is seen as a "palatial" complex.[23] Its building coincided with the first stages of the building of the monumental courtyard complex or Old Palace at Phaistos.

The building of Kommos as a major port replaced Mochlos on the north coast (Shaw and Shaw 1990, 1995, 1996, 2000, 2006; Van de Moortel 2007),[24] which had been the primary Cretan port in the EM phases. This occurred not long after the shift in Minoan sea craft from oars to sails, as indicated by the portrayals on seals of cargo ships with sails or rigging, as reflected on Minoan coins.

Protopalatial Zakros

The Neopalatial palace at Zakros, on the east coast of Crete, south of Palaikastro, also had a Protopalatial phase (Platon 1971; Reid 2007).[25]

Protopalatial Petras

The latest protopalatial building to be designated a palace is Petras, Siteia, in northeastern Crete, which has a small courtyard building. Despite its size, the presence at the site of hieroglyphic documents and Linear A tablets dating from the Protopalatial period of MM IIA–MM IIB (1900–1800 BC) and a wine press, suggest that it was an important administrative center. Thus it qualifies as one of the Old Palaces (Tsipopoulou 2003).[26]

Crete: The Destruction of the Protopalaces (Old Palaces)

In Crete, major earthquake destructions, and not the eruption of Thera, marked the end of MM IIB and the Old Palace Period. Knossos and Phaistos suffered massively, and Quartier Mu at Malia appears to have been destroyed by a violent fire. It was Evans who attributed these destructions to an earthquake (1964: 3: 14), and, despite skepticism (Rapp 1986), recent evidence seems to support this conclusion. The careful analysis of the direction of the tilting and fracturing of walls and the falls of floors, has provided evidence that points clearly to a massive earthquake (Monaco and Tortorici 2004). Could this earthquake have been connected with the Thera eruption?[27] This seems unlikely on the grounds of the chronology of the pottery (see Davis 2001: 56 and n. 159). Moreover, the pattern of destruction also supports an earthquake. A volcanic eruption produces earthquakes that differ radically from the plate shifting that causes a non-volcanic earthquake. In the case of the former, the shock is shallow and the damage limited; such an earthquake would not have spread as far as Crete. In the case of a major earthquake caused by a rupture along a distinct fault segment – a shift in the Earth's plates – the activity is very deep and causes widespread damage (Monaco and Tortorici 2004). The destruction on Crete fits the latter pattern better than the former. In fact, an earlier earthquake had caused destruction on Thera prior to the eruption, but the town was rebuilt, and it was that rebuilt town that was engulfed by the volcanic eruption.

Neopalatial Crete

After the destruction of the Old Palace at Knossos and the other protopalatial buildings, they were rebuilt on an even grander scale, and a number of smaller elite buildings with

palatial features were built in many parts of the island (the MM IIIA–B period).[28] It is the ruins of these buildings that the visitor sees today.[29]

Neopalatial Knossos

The remains of the New Palace, visible today, were heavily reconstructed by Sir Arthur Evans, whose mixture of the mythical King Minos with his own notions of a proper Victorian society, especially with regard to gender roles, resulted in idiosyncrasies such as his "re-creation" of a king's apartment and a queen's apartment. even though it is not clear that these persons/roles existed. Knossos does have a throne room, but it was a later addition, from the period when the Greek Mycenaeans were in charge of the palace.

Knossos was the largest of all the Minoan palaces, with the largest central courtyard, and it seems to have provided a template for the other palaces, which followed essentially the same layout and proportions. This standard palace plan was multistoried, with impressive formal staircases (as reconstructed by Evans at Knossos), and a labyrinthine layout of rooms. Many of these were storage rooms, or magazines with installations for large pithoi. Besides its central court, the palace had a west courtyard – a paved area adjacent to the west facade and open to the town. Other standard Neopalatial features were lustral basins – small rectangular sunken rooms reached by a short flight of stairs; they were lined with gypsum and usually decorated with frescoes. These were at first interpreted as baths, but they had no drains; moreover, the gypsum veneering is water-soluble, which would have made immersion bathing impractical. The discovery of oil jars nearby suggests, however, that they may have been used for ritual cleansing (Evans 1921: 405–22, with whom Hitchcock 2003: 31 agrees). "Minoan halls," another palatial feature, consisted of several rectangular rooms separated into a hall and fore-hall by a polythyron (a pier-and-door construction with square piers containing folding double doors that could be opened and closed individually, perhaps to gradually reveal a ritual performance); usually there was a third room separated by a row of columns containing a light well. These rooms were lavishly appointed, with cut-gypsum veneering and frescoes. They were sometimes located near archive rooms, and Hitchcock (2003: 30) suggests they may have served as meeting places for the bureaucrats who administered the palace inventories, with religion serving "as a mechanism for restricting access to specialized knowledge, hence maintaining its exclusivity."

Some other rooms that also appear to have had a special ritual function were the pillar crypts – small dark underground rooms that contained large pillars, often marked with symbols, especially the double axe. In fact, signs of apparent ritual significance are omnipresent in these buildings, especially representations of double axes and horns of consecration (stone or clay bull's horns). Hitchcock has suggested that, whether or not the palaces themselves were "temples," they "instigated, employed and orchestrated religious belief and ritual as a means of legitimizing their economic activities" (2003: 33) Thus, most of the layout and the common features of palatial buildings seem to have been determined by ritual requirements, rather than being merely copied from Knossos or some Near Eastern palace.

Neopalatial Malia

The New Palace at Malia is the third largest of the New Palaces,[30] although it is not typical in that its workshops – in Quartier Mu – remained wholly separate from the central courtyard building, as they had been in the Old Palace period. After the great earthquake, many of the earlier buildings were modified, and new buildings were built over pre-existing ones; it is this building stage that is best known from excavations. The palace included a central courtyard lined by porticoes on the north and west sides, another building with a west facade in ashlar, a sanctuary with a central hearth, a lustral basin, a polythyron, and storage rooms. It had the usual features of the New Palace period – two stories with a grand staircase, lustral basin, pillar crypt, magazines. Unusual features include an altar, consisting of a sunken area with four supports in the middle of the central court, and the presence outside the southwest corner of the palace of eight great pits, or *koulouras*, each with a pier in the center. Despite these palatial features and evidence for administration in hieroglyphic texts, Rutter does not consider it a palace in the Neopalatial period because the use of separate workshops continued.[31]

Neopalatial Phaistos and Agia Triada

The New Palace of Phaistos covered a smaller area than the old, and a number of features usual in a Minoan palace are missing: no frescoes have been found, nor are there any sealings and tablets [32] It may be that in the New Palace period the importance of Phaistos decreased while that of nearby Agia Triada grew.

Agia Triada, only about 3 kilometers from Phaistos, was inhabited in the Middle Minoan period, but it only had palatial features in the Neopalatial period, when it was rebuilt with apartments, light wells, shrines, magazines, workshops, staircases, porticoes, and courts. Finds were much richer than those at Phaistos,[33] including stone carved vases and the largest single deposits yet found of Linear A, in two buildings, one containing about 150 tablets, the other 861 nodules, attesting its administrative importance. It has been called a summer palace for Phaistos, but in effect it seems to have taken over the administrative palatial functions of Phaistos.

Neopalatial Zakros

The Neopalatial rebuilding of Zakros dates to around 1600 BC. The plan of the palace was not particularly labyrinthine, and it lacked some of the other features common to the other Neopalatial buildings, having no west court or western facade, theatral area, *koulouras*, or pillar crypt. However, it did have a unique feature in a large, round, lined cistern in the east wing, connected to a natural spring. Platon suggested that it was a swimming pool, with which Schofield agreed (1996: 27–33). The building is less substantially constructed than the other palaces: while its outer walls are of well-finished ashlar blocks, the internal walls were built of mud-brick and plaster rather than stone, which Reid describes as "quite flimsy," characterizing the whole effect of the building as "flashy" (2007: 22).

It has been claimed that Zakros acted as the Minoan gateway to the east, as attested by various finds from the Near East on the site. But there are some problems with this

interpretation: the absence of ship sheds or other accommodations for winter shelter for ships, and a lack of Egyptian and Near Eastern transport vessels, such as have been found at Kommos. Fishing has been suggested as the original motivation for the settlement, for which it could have offered a reliable daily food source; however, there is no evidence that Minoans relied on fish as a major food source. On the other hand, the difficulties of overland travel meant that most settlements were coastal, and the prospect of local coastal shipping could have made the site attractive from the beginning. In favor of its significant function as a port with overseas connections are the findings of raw materials, such as elephant tusks and copper oxhide ingots in the palace. In MM III–LM I levels, 9 Near Eastern objects have been found, and 5 from Egypt; in comparison, Kommos in the same period yielded 8 Egyptian imports and 2 Near Eastern – suggesting that the Levantine coast was slightly easier to reach from Zakros (as is the case), but not offering a picture of really substantial overseas trade. Reid suggests that the real key to Zakros' trade was the production of woolen textiles. By LM I/II–LM IIIC Zakros had been abandoned, and Kommos served as the leading port for transactions with both Egypt and the Levant.

Possible Palaces and "Palatial-Type" Buildings

In addition to the major palaces, many smaller courtyard complexes have recently been discovered, for some of which palatial status has been claimed. One of these is at Galatas, which was found only in the 1990s and is not yet fully published. It seems to have been occupied as a "palace" only in the Neopalatial period.[34]

Another recently recognized palace is Khania (Kastelli) (Andreadaki-Vlazaki 2003), located at the important modern port of Khania in western Crete. The site lies under the modern town, and centuries of overbuilding have made excavation difficult and incomplete. Occupation started in the Early Minoan period and lasted through the end of the LM IIIC phase (1100 BC). The town was part of the transformation from a village to an urban culture in the third/second millennia. The architecture, although still only fragmentarily revealed, confirms the process of urbanization, including many palatial features – lustral basins, polythyra, light wells, ashlar facades, fresco paintings, painted floors, storage rooms, and a well-developed drainage system. No central court has been found as yet, but palatial administration is attested by finds of Linear A archives. Ninety-seven tablets and fragments of tablets have been found, including 122 roundels and 28 nodules, the second greatest number found on a Minoan site (Andreadaki-Vlazaki 2003).[35] On the other hand, the negative effects of urbanization on the health of the people are striking. Evidence from the burials shows increased malnutrition, greater instances of disease, higher maternal and child mortality, and overall lower life expectancy in the urban population compared with the rural population of the nearby village of Armenoi (Hallager and McGeorge 1992: 37–47). In general, women were more adversely affected than men, not only in life span, as a result of pregnancy and childbearing, but also in height, a sign of childhood nutritional stress – confirmed by Linear A records that show rations for men were greater than those for women; later Hippocratic texts also suggest that as infants and children, boys were given more food than girls (Demand 1994: 7–8). But women did not have an easier life than men to justify this difference in rations: they suffered greater numbers of

degenerative bone lesions and deformations than men, probably signifying hard physical labor and the carrying of heavy workloads.

Another candidates for "palatial" designation is Gournia, a town with a courtyard which Soles (1991) has recognized as evidence for a "palace."

Other building complexes may have had specialized uses, such as Nirou Khami. This site, on the beach east of Herakleion, had a two-story building with 40 rooms on the ground floor, 2 courtyards, a sacred area, storage areas with pithoi, a light well, and corridors (Cadogan 1976: 139–42).[36] On the south side of the east court, the remains of a large pair of horns of consecration were found, mounted on an altar, together with pieces of fresco showing sacral knots. Other ritual paraphernalia included 4 bronze double axes, 40 tripod altars, stone lamps, and vases, far more than would be needed in a single shrine. Evans suggested that it had been a center for making votive objects.

Villas

Numerous smaller buildings in Crete, usually called villas, date to the Neopalatial period. Although small, these had some characteristics of "palatial" style. Vathipetro, 5 kilometers south of Archanes,[37] was built at the beginning of the LM IA period (ca. 1580 BC). It was badly damaged around 1550 BC, perhaps by an earthquake, and subsequently rebuilt as a farmhouse with a wine press and evidence for textile production. It had a courtyard, ashlar masonry, a west facade, halls with light wells, a possible lustral basin, a pillar crypt, and pillar magazines. It was finally destroyed around 1470 BC.

Myrtos-Pyrgos was a settlement on the south coast which, after two destructions, was rebuilt in the Neopalatial period as a villa or country house with ashlar masonry and other palatial features. Finds of Linear A tablets, clay sealings and various contents from a shrine suggested to its excavator, Gerald Cadogan, that it served Knossos as "the grand house of the district, the social, economic and administrative centre."[38] In fact, the line between palace and grand house becomes increasingly blurred with more discoveries.

The Origin of the Minoan Palaces

The question of the origin of the Minoan palaces has been one of many recurring battles pitting proponents of indigenous development against those who see outside influence. These debates are highly influenced by nationalistic searches for local roots, and they also tend to oscillate. The belief that Near Eastern inspiration lay behind the building of the palaces was widely held in the earliest days of Minoan archaeology, while in the 1960s and 1970s, internal development became popular, most notably in Renfrew's (1972) model of redistribution, and Halstead's (1988, 1992a) model of storage and redistribution.[39] But none of these indigenous models had lasting success.

The question of the origin of the palaces has recently been shifted dramatically by the work of Ilse Schoep (2004a, 2006), who has called into question the assumption, based on Evans' interpretation of Knossos, that the Old Palaces were very like the New Palaces. On the contrary, Schoep points out, the meager evidence remaining from the

earliest palaces – which she suggests might better be called courtyard buildings – does not reveal any of the so-called palatial features, such as Minoan halls, ashlar west facades, orthostats, lustral basins, or light wells. On the contrary, these buildings appear to have been primarily utilitarian, functioning as community meeting places that "housed an important social institution that may have been instrumental in promoting a particular social order and maintaining social cohesion ... [serving] as the principal ceremonial focus for a wider urban community" (Schoep 2006: 58). Evidence for palatial features first appears, not in these public buildings, but rather, in the private houses and tombs of a wealthy elite, such as Building A of Quartier Mu, the Chrysolakkos Tomb, and the Crypte Hypostyle at Malia. The inhabitants of these buildings, merchants and traders – we might call them the nouveaux riches – in their travels discovered new ways to enhance their buildings and engaged in a contest of reputation and status with their peers. Only later, after the destructions at the end of MM IIB, were these special features appropriated by the surviving elites and merged with the long-standing traditions of the court buildings to produce the elaborate New Palaces that we know.

The piecemeal adoption of foreign architectural elements and technologies in the early Cretan courtyard complexes, and the development of these complexes around a preexisting local feature, central courtyards associated with small shrines (Schoep 2004a), renders somewhat moot the question of whether the Minoan palace was an indigenous development or imported. The Minoans did not import a "package" from abroad, but they did use eastern elements to resolve indigenous problems. In particular, the early focus on courtyards in conjunction with small shrines suggests that the primary need was indigenous, the necessity for space for sacred ceremonies involving large groups of people (Driessen 2004).

Minoan Maritime Connections in the Neopalatial Period

During the Middle Minoan period, the Minoans began a period of marked intensification of foreign contact and settlement resulting in a number of heavily Minoanized settlements in the Cyclades (Kea, Kythera, Phylakopi on Melos, and Akrotiri on Thera); at several sites in western Anatolia, notably at Miletus; and at Trianda on Rhodes (Branigan 1989: 68; Barber 1987: 194–200; Strøm 1980: 115 and n. 11; Karageorghis and Marketou 2006). The inhabitants of these sites lived in houses of Minoan construction or plan, decorated them with Minoan frescoes, used Minoan household utensils, and adopted Minoan administration (Linear A) and burial customs (Strøm 1980: 114). Whether this was the result of colonization (W.-D. Niemeier 2005), acculturation (Mountjoy 1998), or emulation,[40] it evidenced a development of international relations that had far-reaching results, bringing the Minoans into a new, more expanded cultural sphere (Wiener 1990).

The motivation for the expansion was probably the acquisition of metals. Crete itself lacked both copper and tin. Copper was present in small amounts in the Aegean, at Kythnos and Kea, with the most abundant source being Lavrion in Attica. Further afield, Cyprus was rich in the metal – according to Gale and Stos-Gale (2007), 26 percent of the copper artifacts found on Crete were made from Cypriot copper – but that island was slow to develop an export trade Tin was also lacking in Crete, Greece,

and the Aegean islands.[41] There were small deposits in the Troad, and (arguably) farther east in the Taurus mountains in Anatolia (a bone of contention) (Yener and Vandiver 1993a; 1993b; Yener 2000; 2002; Mellink 1993a; challenged by Muhly 1993; Kassianidou and Knapp 2005: 224–5),[42] but the main source of that metal was further east, in Afghanistan or beyond, from which it was carried along trade routes to Mediterranean ports. A tin inventory from Mari during the reign of Zimri-Lim is recorded in a text dated to 1780–1760 BC; it lists numerous tin shipments from Mari destined for various rulers, including consignments from Zimri-Lim for the Caphtorite (Cretan) and for his interpreter, and for a Carian (Dossin 1970; Malamat 1971). This confirms Mari as a transshipment point for the metal on the route from the east, as well as Crete as a player in the network of tin supply.

Did Minoan ships carry some of this material? There is no real answer to this question. That the Cretans had ships that could have made the trip to the Levantine coast and Cyprus is suggested by the portrayals of large sailing ships on Cretan seals at this time (Marinatos 1933; Hutchinson 1962: fig. 15; Platon, Pini, and Salies 1977; Sbonias 1995; Krzyszkowska 2005). They had established interim ports at least as far as Rhodes, which would have had to be secured from the attacks of pirates and maintained. Crete itself may seem to have had little to offer to Levantine traders – except, importantly, the port of Kommos, the best harbor for further ventures to the west. Many Cretan objects have been found in the Levant. The earliest Minoan Bronze Age pottery export found in the east, a MM IA Kamares bridge-spouted jar, was discovered at Lapithos on the north coast of Cyprus (Grace 1940: 10; Lambrou-Phillipson 1990: 87; Watrous 2001: 211), evidence that is strengthened by finds of several daggers of EM III/early MM IA type (Catling and Karageorghis 1960: 108–12; Warren and Hankey 1989: 115). Another piece of Kamares ware, a MM IB/IIA Karmares mug, was found at Karmi, another north coastal site; the fact that it was placed upside down beside the head of the tomb's occupant, with a faience blue bead, suggested to Stewart (1962) that the man was a sailor buried with his cup and good luck charm. But Merrillees (2003: 139), whose work provides the best overview of the archaeological finds as of that date, sees it, like other Minoan vases in the Levant, as simply carried by a merchant along his route, perhaps as a souvenir, or to peddle in another port.

Similar finds have been made on the mainland. At Ras Shamra/Ugarit, the closest Levantine port to the northern Cypriot coastal route, three MM II Kamares cups have been found (Kemp and Merrillees 1980: 174). A Minoan cup (the Sidon cup) was deposited in a tomb in Sidon at about the same time as the Karmi cup in Cyprus, inverted over a collection of small animal bones, probably the leavings from a funerary feast (MacGillivray 2008). About half-a-dozen MM vases have been found at Byblos (Dunand 1939: 311, plate CLXIV.4170; 77, 191, plate CLXXVII.2986; Cadogan 1983: 514), including a MM IB cup (Smith 1965: 13, fig. 20.d), and two MM I bridge-spouted jars (fig. 19). Other stray finds of MM II and III pottery have been made in inland Syria and Palestine, although their provenance is in most cases questionable (Kemp and Merrillees 1980: 276; Smith 1965).[43]

In all these cases, what we see in these Minoan artifacts in the Levant is probably not the result of organized "trade" by the Minoans but rather the accidental travel of small items valued for their novelty or for personal use by sailors and other travelers. There is more evidence that Cretans reached Egypt, although the routes used are in dispute

(Phillips 1990, 2008; Watrous 1994; 1998; Colburn 2008; Warren 1995, 2000). The circuitous route by way of the Levant and continuing on to Egypt is well documented archaeologically by a trail of Minoan finds, as noted above. The winds favor a direct route south from Crete to Egypt, either directly to the Delta, or to the north African coast and then along the coast. This would, however, have involved the need for a long voyage out of sight of land and for longer periods than a day. Bloomberg and Henriksson (2008) have argued that navigation over such stretches of water was made possible by the early Minoan development of astral navigation. The probable existence of astronomical knowledge to support this has often been argued on the basis of the orientations of important Minoan buildings to sunrise and sunset at the equinoxes and solstices (Goodison 2004; MacGillivray 2004). But stopping points along the route to Egypt from first landfall would have been needed as well, at least for water supplies. On that coastline, however, the only possible candidate for a port is Marsa Matruh (Negbi 1994: 89–90), but only Late Bronze Age finds have been made at the site (White 1986).[44]

A route from Egypt to Crete is more problematic, since the winds and currents were seldom favorable, as argued by Lambrou-Phillipson (1991); on the other hand, both Warren (1995: 10–11) and Watrous (1992: 172–3, 175–8) defend the use of this route. But travelers going from Egypt to Crete probably preferred the indirect route by way of the Levantine coast in order to maximize trading opportunities by visiting more ports (MacGillivray 2004; Goodison 2004).

There is considerable evidence for significant connections between Egypt and Crete in imports that attest technological and intellectual interactions that would have required the travel of skilled people. Homer identifies travelers likely to be received warmly as those with a particular skill:

> For who goes visiting elsewhere so as to call in another
> stranger, unless he is one who works for the people, either
> a prophet, or a healer of sickness, or a skilled workman,
> or inspired singer, one who can give delight by his singing?
> These are the men who all over the endless earth are invited.
> *Odyssey* 17.382–5 (tr. Lattimore)

It is noteworthy that traders are not included in this group! In fact, they get a rather bad press in Homer's stories, especially Phoenician traders, such as those who stole away a king's son, Eumeos, to a life of slavery (*Odyssey* 15. 415–84). Among travelers who were welcome in Homer's world, builders, healers, and prophets (*mantis*, often, as below, functioning as healers) are all attested as among the foreign workers found in Egypt.

The most numerous Egyptian imports to Crete were easily transportable scarabs, which were found in contexts equivalent in date to the Middle Kingdom and earlier (Phillips 2008: 108–38). Scarabs were first manufactured in Egypt in the First Intermediate Period (ca. 2150–2025 BC), where they were used primarily as amulets, and secondarily in funerals. From the early Twelfth Dynasty, however, they were also used as seals, and this use became widespread in the second half of the Twelfth Dynasty, "probably as a direct result of an increasingly intricate administration system initially

introduced by Senusret III and extended under Amenemhat III" (Phillips 2008: 115). In Crete, although scarabs were used as amulets, their primary use was as seals for administrative purposes. Weingarten, in fact, sees the origin of the early administrative systems on Crete as Egyptian, or, possibly, Near Eastern (1986: 280–1; see also Fiandra 1968).

Minoan production of copies of Egyptian scarabs provides evidence of close associations between the two cultures. Egyptian scarabs can be dated because a series of early Middle Kingdom scarabs differ significantly from scarabs of the later Middle Kingdom (Ben-Tor 2007). These early scarabs, fewer than 50 of which have been found in Crete, pre-date mass production, and many were of local manufacture. They were usually made of glazed steatite and were individually carved. Ben-Tor notes that the use of the same material and manufacturing techniques "suggests close familiarity with Egyptian manufacturing of scarabs, which could have been attained only by working alongside Egyptian artisans" (2007: 81). But there are Cretan scarabs that imitate Egyptian models while also evidencing local adaptation: the types of the scarab back and head are more schematic and made using a slightly different carving technique than the Egyptian. Their bases also display local designs rather than Egyptian prototypes. Pini has identified a workshop or workshops in the Mesara plain which adopted not just the scarab form but the technique of glazing and probably also the imitation of a man-made but still enigmatic material ("white pieces," possible steatite in powder form, with some bonding agent) (Pini 2000: 111–12; Panagiotaki 2000). Thus scarabs, while among the smallest of the imports, provide strong evidence for the communication of both craft techniques and administrative technology between Egyptians and Cretans.[45]

Additional evidence for the probable presence of Cretan workers in Egypt, is provided by textiles, perishable items that played an important but archaeologically nearly invisible role in international trade. Most of the evidence for Minoan cloth in Egypt exists in wall paintings. The earliest Egyptian ceilings to show Cretan textile patterns appeared at the height of the Middle Kingdom, in the tomb of Hepzefa in Assiut in Upper Egypt (Barber 1991).[46] There is some evidence suggesting that some of the Minoan cloth that inspired the Egyptian tomb painters may have been done in Egypt in the discovery of a "handful of weaver's waste" of spun wool in three different colors, including cut-off ends from a loom, found at Kahun (Petrie, Griffith, and Newberry 1890: 28; David 1986: 241–6). That it was the weavers who traveled, not the cloth, is suggested by the fact that Egyptians did not use wool or colored materials for clothing, preferring white linen; while they had sheep, did not raise them for wool. A typical Cretan low-whorl spindle, made of Egyptian materials, although found in a New Kingdom context, offers some support for a traditional practice of Cretan weavers (Barber 1991: 351).

Evidence from Crete related to textile manufacture also exists in the discovery of the remnants of purple dye production at the site of Kommos in a MM IB/II context (Ruscillo 2006: 802–3, 807–1). Large deposits of shells and an installation associated with crushed murex remains were found. Crushing the shells was difficult, and the work was unpleasant because of the smell of the rotting creatures and the vinegar and urine used to set the colors, odors that lingered and required masking even in the final product. Ruscillo suggests that the work was probably consigned to

females and children, who were probably slaves. Purple-dyed textiles were a valuable export for Crete, probably a major item offered in exchange for copper and tin (Burke 1999).

The presence of Cretans in Egypt for extended periods of time is indicated by the evidence for Cretan "guest workers" at the building site of Amenemhat I's new capital and pyramid at El-Lisht in the Faiyum. Fragments of imported Minoan Kamares ware have been found there. A Cretan vase was found in a tomb at Abydos, another at Elephantine (Qubbet el-Hawa). Imitations of Minoan pottery were also found at Kahun (Kemp and Merrillees 1980: 284–5). Except for the pieces from Abydos and the Elephantine, all these were found in a 50-kilometer stretch of the Nile between El-Lisht and Kahun. The greatest amounts of Kamares ware were found in refuse dumps in the vicinity of the small houses of the village at Kahun, suggesting that they had belonged to workmen or to merchants. Imitations found there would also suggest that the style had some value or attraction, perhaps as a novelty.

That the center of the activity of Cretan workers in Egypt was the Faiyum is not surprising given the many building projects undertaken there in the Middle Kingdom and the fact that the area was connected with the Nile by a river, the Bahr Yusuf. It may have been an important docking site for ships that had traveled directly south from Crete and then coasted along to the Delta (Barber 1991: 351).

In contrast to Watrous, who sees a preponderance of influence on Crete coming from Egypt, Betancourt (1998, 2006) focuses on finds that show influence from North Syria in the Middle Bronze Age. Some of these, in particular a triangular rivet system for attaching blades to weapons, seem to have originated in the area of Syro-Cilicia, while crescent-shaped hafting, which originated in Egypt, may, according to Betancourt, have arrived in Crete via Syria (Branigan 1967: 120–1; Dietz 1971; Betancourt 1998: 6). The technique of inlaying metals, often applied to weapons, was also first evidenced in Byblos and probably learned from there by Minoans (Betancourt 1998: 6). In addition to weapons, other evidence shows that the Cretans learned techniques used to produce luxury products from the Levant: granulation in gold jewelry, which is first attested in the Royal Burials at Ur (2600–2500 BC),[47] was used in Byblos ca. 2000, and in Crete shortly thereafter, thus in MM IA (Higgins 1980: 22–3; Lilyquist 1993).

An important area of interconnection attesting intellectual contact was medicine. Medical lore in the form of magical cures traveled, as attested by a spell in the London Medical Papyrus against the "Asiatic disease." Said to be "in the language of the Keftiu" (Cretans), it offers evidence for the knowledge by some Egyptians of Minoan language (although the level of that knowledge, as attested by a spell probably written in nonsense syllables, is doubtful) (Haider 2001).[48] While the papyrus dates to the late Eighteenth Dynasty, it is believed to be a copy of an earlier work, going back to the end of the third millennium (Haider 2001; Press 1978: 6). The spell, in a text containing chapters in Semitic and Nubian languages as well as in Minoan, was written with Egyptian hieroglyphs using a syllabic method, and attests to the Egyptians' facility with languages. It names two Minoan deities "Razaja/Razija" (or "Lazaja/Lazija") and "Ameija/Amija," who are otherwise unknown. There are other Egyptian texts in the Minoan language – a school exercise with a list of Minoan personal names, and a collection of magical sentences (Papyrus Harris No. XII) – that further attest Egyptian acquaintance with the language of Crete (Haider 2001: 481). Another piece of

evidence for religious or magical borrowings between Egypt and Crete is a sistrum, an Egyptian musical rattle used especially by women in the worship of Hathor,[49] which was found in the Arkhanes Phourni cemetery (Sakellarakis and Sapouna-Sakellarakis 1991: 121–2, fig. 99).

Herbs and other natural remedies, and the knowledge of their use, also traveled. New, foreign treatments often have a special attraction, and sick people travel as well, carrying unfamiliar diseases and making knowledge of foreign methods of treatment desirable. Crete was well known as a source of healing plants, of which perhaps the best known is dittany, whose therapeutic properties are known in folklore and recommended by Hippocrates.[50] It was used to heal wounds, soothe pain, cure snakebite, ease childbirth, relieve gastric or stomach ailments and rheumatism, and as an aphrodisiac. An important and unusual attraction would have been its alleged ability to expel weapons, a property attributed to it from the observation that goats ate it when struck by an arrow.

While there is no evidence to prove that dittany, or other Cretan healing plants, traveled to Egypt, there is evidence that medical knowledge, and a medicinal plant, silphium, moved in the other direction, from Cyrene to Crete. Silphium was famed in antiquity for its many medical uses, including the relief of coughs, sore throats, fever, indigestion, fluid retention, seizures, aches and pains; it was also believed to be an effective birth-control agent and an abortifacient. It grew only in a very limited area of Cyrene and was impossible to transplant or propagate elsewhere. It is believed to have been extinct since the first millennium BC.[51] The image of a silphium plant has been identified in Minoan hieroglyphic signs found on sealings from the Hieroglyphic Deposit at Protopalatial Knossos, whose texts were related to stocks bought, sold, or traded (Evans 1921: 284–5; Fabricotti 1993).

Another intellectual area in which cultural transfer can be documented is architectural planning. Preziosi (1983) sees the planning of buildings as an important medium by means of which Near Eastern and Egyptian influences were shared and communicated to the builders of the Minoan palaces. The general method of modular planning is found in a number of early Mediterranean societies as early as Çatalhöyük (7000–5600).[52] Preziosi demonstrates the use of modularity in the various Pharaonic building projects, most notably in the constructions of the pyramids; it was also evident in a wide range of Minoan buildings from houses to palaces. Evidence for a direct connection between Egypt and Crete in architectural planning has been seen in the discovery of a wooden measuring rod, definitely not Egyptian, possibly Minoan, at the pyramid complex of Sesostris II at Kahun/El Lahun (Preziosi 1983: 495, and n. 24). Considered together with fragments of Minoan pottery found at that site, it suggests that Cretans were actively engaged not simply in manual labor but in planning on some scale, working and communicating with other workers.

Within Crete itself, there is evidence for the sharing of architectural ideas and techniques, either through the travel of architects and builders or by means of sketches, models, or oral or written plans, or even (but less likely) by means of an official building program distributed and controlled by a central authority (Driessen 1989–90). More significant than one or two possible specific instances, however, are the widespread examples that suggest that modular planning was an element of a *koine* of technical knowledge that was widely diffused throughout the eastern Mediterranean from the

Chalcolithic period on, carried by the movement of craftsmen (Preziosi 1983: 29, n. 21; 320, 323 nn. 5–6).

That international status could be created by the building of a palace is seen in the reported request of the ruler of Ugarit for an account of the residence of Zimri-Lim of Mari, which attests the existence of an atmosphere of competitive palatial building (Parrot 1937: 74–5, n.1; Dossin 1937: 19), in which rulers or their emissaries traveled to view palaces and bring home ideas about palace design. Watrous has suggested that such interests might also have spread ideas about the institution of kingship, as it was practiced in the Levant and Egypt, and some see its presence also in Crete expressed in these buildings.[53]

Another architectural sphere that provides evidence for foreign interaction is the widespread appearance in the east Mediterranean, from palatial settings to private houses, of the decoration of walls with Aegean-style frescoes using *buon fresco* technique, in which paint is applied to still wet plaster. Wall painting was hardly new in the east Mediterranean. It had been practiced for millennia, with notable examples being the elaborate, often three-dimensional paintings at Neolithic Çatalhöyük with their giant bull heads, birds, and bears, as well as a miniature landscape scene portraying the village with its houses and the volcano in the distance (see Chapter 2). But these earlier wall paintings were painted on dry plaster – *fresco secco*, not on wet plaster. In fact, the earliest known occurrence of buon fresco is in Minoan Crete. Because of the need to have the plaster at an optimum state of wetness, and the use of special formulations for various colors, it is a demanding craft that must have been communicated through apprenticeship.

Buon frescoes have been found on numerous sites in Minoan Crete, not only in palaces but also in private villas, and similar frescoes have been found on the Cycladic islands, in the Levant, and in the Delta site of Avaris. These include the miniature maritime frescoes at Thera, Ayia, and Tel Kabri, as well as miniature and full-scale frescoes at Phylakopi on Melos (Morgan 1990), and full-scale frescoes at the palace of Yarim-Lim's palace at Alalakh Level VII (Woolley 1955: 228–34, plates 26b–28b),[54] and at Avaris both miniature and full-scale frescoes, including bull leaping, a maze-patterned floor, and Aegean-style landscapes (Niemeier and Niemeier 1998). The practice of bull-leaping,[55] and the maze, reflected faintly in the myth of Theseus and the Minotaur, are even seen by some scholars as evidence for a Minoan thalassocracy (Niemeier 1990a), but what they undoubtedly do provide is evidence for the existence of a community of shared artistic techniques and concepts.

Sherratt suggests that what was involved was an eastern Mediterranean, and not simply Minoan-based, artistic *koine* (S. Sherratt 1994b; Niemeier and Niemeier 1998: 95). One way in which some of these themes and portrayals, such as the townscapes, could have been shared was through textiles (S. Sherratt 1994b).[56] Evidence shows that landscape and even architecture were portrayed on clothing in wall paintings themselves, in a complex interplay between representation and object being represented (Chapin and Shaw 2006). Whether the fresco work was carried out by groups of freelance Aegean craftsmen offering their wares to any employer (Betancourt 1997b; Marinatos 1998), or whether specialist groups were employed directly by rulers who used their work in the diplomatic game of elite gift-giving (Niemeier and Niemeier 1998), is a matter of dispute. In support of the existence of specialists in Crete who were

summoned to various palaces to paint ritual frescoes, Niemeier (1995b) appeals to the Ugaritic myth of Kothar-wa-Khasis, a highly skilled specialist who was brought from his throne in Kptr (Crete) to furnish a splendid palace of the god Baal. As Niemeier remarks, "this points to more than mere trading connections between the Levant of the Hyksos' period and the Aegeans ruled by Minoan Crete" (1995b: 11).

Egypt: The Hyksos and the Second Intermediate Period

While the New Palaces were being built/rebuilt in Crete, beginning from ca. 1750/1720 BC,[57] in Egypt foreign elements from north Palestine increasingly infiltrated into the Delta, possibly invited as guest workers by the Egyptians. They were attracted by the promises of an area that already had a sizable Semitic-speaking population settled at Avaris, as well as access to the navigable Pelusiac branch of the Nile and thus to the Mediterranean and its trade routes.

In Egypt, the successors to Amenemhet II carried out vast construction programs that must have required the importation of large amounts of timber from Lebanon, although there are no surviving records of their voyages. Senuseret II built a pyramid at El-Lahun/Kahun in the Faiyum oasis region, where the discovery of the workers' village has provided valuable evidence for foreign contacts (David 1986).[58] He also inaugurated an extensive irrigation system in that region with the construction of a dike and a network of drainage canals.

The successor of Senusert II, Senusert III, known to Herodotus as Sesostris (*Histories* II. 102–11), carried out several campaigns extending Egyptian rule in Nubia, and built massive river forts at the southern Nubian border (Callender 2000: 166), where he set up stelae as signs of Egyptian authority in the region. He was also responsible for the introduction of an increasingly intricate administration system, attested by a greatly increased use of scarab seals (Phillips 2008: 115).

The administrative system set up by Senusert III was continued and extended under his sole son and successor, Amenemhat III. His building activities were especially ambitious. After his first pyramid at Dahshur was found to be defective he built another at Hawara in the Faiyum, which was accompanied by a vast mortuary temple complex that the later Greeks called the "Labyrinth."[59] Herodotus, who visited the project in the fifth century BC, described a building complex with a maze of 3,000 rooms connected by winding passages (*Histories* II. 148–9).

But cracks in the system began to appear as the extensive building projects, aggravated by a series of low Nile floods, resulted in political and economic decline. The exceptionally long reign of Amenemhat III weakened the Egyptian government, leaving elderly successors. Amenemhat IV, was probably ineffective when he succeeded to the throne. At his death the throne passed to a woman, Sobekneferu, probably the younger sister and wife of Amenemhat IV (Shaw 2000: 170–1), who was probably also elderly (Leprohon 1996: 170). Despite cross-dressing efforts to portray her as both male and female in order to enhance her legitimacy,[60] she ruled for less than four years, bringing the Twelfth Dynasty to an end ca. 1786. The succeeding Thirteenth Dynasty was a period of uncertainty, when the average reign of a king was less than three years, and records even ceased for a time. At the same time, there were continuing difficulties

in controlling the local nobility (nomarchs). Threats came from other directions, as well, as Nubia revolted. The Execration Texts[61] – pottery bowls and figurines inscribed with curses and then smashed to bring a similar fate upon those whom they represented – named Libyans, Nubians, West Semites, and even some Egyptians – perhaps members of a conspiracy to seize the throne (Knapp 1988a: 167).

At some point in the Thirteenth Dynasty, in ca. 1710, the Egyptian court abandoned the capital at El-Lisht and established itself at Thebes, while the Hyksos, "princes from a foreign land," established a dynasty of their own, the Fifteenth, at Avaris/Tell el Dab'a. Egypt was once again split, with three powers holding sway: the successors of the Middle Kingdom pharaohs in central Egypt, the Nubians in the south, and the Hyksos in the north. Given the general state of weakness of the Egyptian state when the Hyksos finally "took over," it is unnecessary to invoke an eruption of Thera as a destabilizing factor.

Little certain is known about the nature of Hyksos kingship (Ryholt 1997). They used traditional titles associated with Egyptian kingship, and that they preserved at least some of the structure of Egyptian bureaucracy is suggested by the discovery of a scarab on the finger of the tomb owner in a wealthy tomb identifying him as the Deputy Treasurer *Aamu* – of the "Asiastics" (Bourriau 2000: 191). Although the ruler of Avaris claimed to be king of both Upper and Lower Egypt, there were always problems with the southern regions (Shaw 2000: 195–203). Nevertheless, royal succession was established and was relatively stable for long periods. Of the Hyksos kings, Khyan, reportedly the fourth king of the Hyksos Fifteenth Dynasty, ruled for approximately 40 years (1621–1581 BC); he was succeeded by Apepi/Apophis, who usurped the throne and who also ruled for 40 years.

The Hyksos are known mostly from negative Egyptian sources, but they had a positive side as well, and significant accomplishments. During the reign of Apepi/Apophis there was a conscious revival of Egyptian scribal traditions, necessary for the management of the complex Egyptian bureaucracy. The success of this revival can be seen in the copying of the Rhind Mathematical Papyrus in the thirty-third year of his reign, attesting to the highest level of scribal learning and access to a specialized archive of mathematical texts at the Temple of Ptah in Memphis (Shaw 2000: 194).

The Hyksos also developed a thriving trade from which they grew wealthy. Their pottery (Tell el-Yahudiya ware) spread as far south as the Kingdom of Kush, and many Egyptian-made jugs of Tell el-Yahudiya ware have been found in Cyprus, from which new influxes of population may also have come (Shaw 2000: 189). Evidence for reciprocal trade has been found at Avaris in an exceptional amount of Cypriot pottery, about 500 pieces in popular Middle Cypriot styles, mostly small containers for precious liquids coming from southern sites in Cyprus that had just themselves experienced expansion and social change (Maguire 1995: 54; Bietak 1996: 63). There is even some suggestion that a Cypriot community was established at Tell el-Dab'a (Bietak 1996: 35, 59, Maguire 1995).

The Hyksos also had contact with Crete. Sherds of Minoan Kamares ware were found in the gardens of the Hyksos palatial fortress,[62] probably brought by a merchant.[63] A gold pendant found in a plundered tomb in the same level, representing two facing beasts, probably dogs, was also probably Cretan and obtained by a merchant through trade (Walberg 1991).

But the extent of the Hyksos' relationship with Crete appears most clearly in the evidence for Minoanizing frescoes in their palace (Betancourt 1997b), which was built toward the end of their rule (Level D/2, 1520–1520 BC), as attested by finds of Cypriot White Painted V–VI Bichrome pottery in sand dumps used to level for construction (Bietak, Marinatos, and Palyvou 2007: 17). Fragmentary remains of frescoes that may have decorated the Hyksos palace have revealed Minoan-type scenes, including bull leaping and maze patterns (Bietak 1992; 1995; 1996; Bietak and Marinatos (1995); Bietak, Marinatos, and Palyvou 2007), which are similar to the frescoes found at a number of other sites in the Levant. Whether the frescoes decorated a Hyksos palace, as originally suggested by Bietak (1992), or both that palace and its Eighteenth-Dynasty replacement, as Bietak and Marinatos (1995) later suggested, or were wholly Eighteenth-Dynasty works, as Bietak still later suggested and now holds (1996; Bietak, Marinatos, and Palyvou, 2007), is a confusing question that probably should be given "some breathing room" now, as Cline has suggested (Cline and Harris-Cline 1998: 218; but see Bietak 2000).

Another important Hyksos trading partner was Canaan, as attested by the number of Canaanite jars that were imported – an average of 8,000 per year – which Marcus (2006: 188) estimates must have required between 53 and 163 ship arrivals each year, or, if sailing were limited to the spring–fall period, a ship a day. Canaan, as a result, flourished, becoming highly urbanized. Hazor prospered as a northern gateway city, paralleling Tell el-Dab'a in the south (Ilan 1995).

The extent and profitability of Hyksos trade is suggested by the second stela of the Egyptian Pharaoh Kamose (Ryholt 1997: 273),[64] set up to commemorate a victory in Nubia over the Hyksos that lists the "seizure of hundreds of ships of new cedar at the port of Avaris" and the capture of their contents – "chariots and horses, ships, timber, gold, lapis lazuli, silver, turquoise, bronze, axes without number, oil, incense, fat, and honey" (Negbi 1994: 83; Bourriau 2000: 195).

The End of the Hyksos Period and the New Kingdom in Egypt

The Theban princes at length were able to drive out the "Asians." The palace was destroyed by the Egyptian Kamose just before his brother Ahmose, the founder of the Eighteenth Dynasty, finally expelled the Hyksos after an unsuccessful siege of the city by concluding a treaty by which he agreed to the mass exodus of the Canaanite population (Shaw 2000: 214, following the account of Josephus). A series of campaigns followed in which he succeeded in regaining control of all of Egypt. He then turned to Canaan, bringing it under Egyptian rule and ending its prosperity in a vicious circle of agricultural failure, urban collapse, and resort to pastoralism and banditry (Ilan 1995). He then devoted the rest of his reign to a massive building program at the great cult centers and at the southern and northern boundaries of the now unified Egypt, Buhen in the south, and Avaris in the north.

The success of the Hyksos in taking over part of the Egyptian territory, even if temporarily, made the threat of foreign intervention real to the Egyptians. It inspired the imperialistic drive of the New Kingdom, and surely was still a formative element in Egyptian response to the attack of the Sea Peoples at the end of the millennium.

Greece: The Mycenaeans and an Opening to the West

In the recovery from the troubles at the end of EH II, mainland Greece lagged behind other Mediterranean areas. Most Greek sites experienced destruction, population dislocation, and a severe decline in the subsequent three to four centuries (EH III–MH II). Most struggled to survive as isolated farming villages. But there were definite bright spots.

Kolonna on the island of Aegina was the brightest of these bright spots. After the initial destructions the town rebuilt its walls, placing a rich grave at the gate of the newly refortified town, in a position that suggests that the young man buried there was being specially honored as a local hero. The stone-built and tumulus-covered grave, a sort of "shaft grave," contained a young male accompanied by a warrior's equipment: a bronze sword, spearhead, and daggers, a handful of obsidian arrowheads, and the pieces of what must have been a boar's-tusk helmet – splendid equipment for its time. What is most noteworthy, however, is the presence among the grave offerings of gold diadems and fine pottery from Crete and the Cyclades, suggesting "that this is the burial not merely of a warrior but of a political and/or military leader as well."[65] Or, perhaps, of a successful pirate as local hero.

Similar, but even more spectacular shaft-grave burials were found at Mycenae.[66] These graves, which are taken to define the beginning of the Mycenaean period, were arranged in two circles and spanned the period 1650–1500 BC, with increasingly rich burials that reflect increasing outside contacts, especially with Minoan Crete. The richest of the burials contained Minoan faience; swords, daggers, and spearheads of Minoan types, including the famous "painting in metal" daggers with their inlaid portrayals of hunting and scenes of nature; 28 vessels of solid gold, crudely made and judged to be of Mycenaean workmanship; 42 silver vases of fine Minoan workmanship, including the "Silver Siege Rhyton," decorated in relief with the scene of an attack on a fortified town. The finely made artifacts were definitely of Minoan workmanship, either imported – or the spoils of battle – or made by resident Minoan craftsmen, free immigrants or captives seized as slaves during pirate raids. The interpretation depends a great deal on one's view of the Mycenaeans.[67]

Kolonna itself become a lively trading center in the second millennium, second only to Troy in the Aegean in its affluence. Destroyed again and again, it was rebuilt each time, always with bigger and more formidable walls and increasingly intricate gate systems. The town itself was also rebuilt, in a careful, planned manner, with houses loosely joined together in "insulae"; the population grew as well, and eventually a new suburb had to be built – and suitably fortified (Felten 2007).

Aegina is also known as the site of a specialized ceramic industry (Gold Mica Ware, incorporating visible inclusions of biotite mica), which produced vessels for export and used potter's marks for the first time in the Aegean (Lindblom 2001; 2003).[68] Niemeier (1995a) has suggested that these indications of organization in the ceramics industry, and of planning in the repeated rebuildings of the town, indicate that Aegina had reached the status of a "state." But it is difficult to see how even a successful pottery export business could have financed the purchase through normal trade of the rich collection of artifacts known as the Treasure of Aegina. The Treasure of Aegina is a

collection of jewelry, mainly in gold, purchased in 1891 by the British Museum from George Brown, an English businessman on Aegina. The treasure was found in clandestine excavation, and after much uncertainty, it is now attributed to a Cretan goldsmith's of about 1800–1700 BC. It may have been originally hidden at Malia in Crete, which was situated on the coast and exposed to seaborne threats; Basch (Basch and Artzy 1985: 435–6) suggests that the treasure was stolen by Aeginetan pirates from a rich tomb in the Chrysolakkos necropolis. Thus, Basch (1986) suggested that there was another – and related – side to Aegina's maritime activities. Drawing attention to the many signs of piratical activity in the Aegean during this period, as noted by Thucydides (*History of the Peloponnesian War* I.10); the images on Aegina vases of the earliest seagoing ships specially designed for fighting; and the city's strongly fortified site, he suggested that Aegina was, in fact, a highly successful "nest of pirates."

Elsewhere on the mainland, especially in Messenia in the southwest, the activity of the Minoans, notably those on Kythera, was growing, and this was to open a whole new world to Aegean maritime traffic in the central and western Mediterranean. Minoan influence in Messenia was long ago seen in the introduction there of the tholos tomb, presumably from the Mesara in Crete (Hood 1960). Connections based on such rough parallels in form and function are difficult to establish, however (Hägg 1982), and other, more convincing evidence for Minoan influence in Messenia now exists. One example is the discovery there of Minoan-style lustrous decorated pottery. Especially important are five Keftiu cups found at Messenian sites, a unique series with a pattern of metopal spirals, which very likely originated in Kythera or were produced under the instruction of immigrant Kytheran potters (Lolos 1999; 1987: 498–532).

Similar spiral metopal patterns have also been found on Lipari and on the island of Vivara in the bay of Naples, indicators of the beginning of Aegean interchange with the western Mediterranean during the first half of the second millennium (Cazzella and Moscoloni 1998). In 1758 BC, Hammurabi's conquest and destruction of Mari must have interrupted the supply of tin from this source, and turned the Minoans to a search for alternate sources, as argued by Ingrid Strøm (1980: 112–18). Attention may then have turned to Sardinia and Tuscany, where small amount of casserite (tin ore) were present (Giardino, Merkouri, and Pepe 2008: 223).

Evidence for sea traffic between the Aegean and the central Mediterranean at this time is present in these finds of metopal spiral design on LH I cups at Lipari and Vivara in the Tyrrhenian Sea (Lolos 1999). As noted above, this design was introduced into Messenia from the Minoan colony of Kythera, and this suggests that exchange with the central Mediterranean as well as Messenia may have motivated the enhancement of that colony, first established in the third millennium (see Chapter 5). It is fair to ask if the confrontation of Odysseus with Scylla and Charybdis in Homer's *Odyssey* was not a reflection of early experiences of the difficulties of this route, preserved through the oral transmission of that poetry.

The Aeolian Islands, especially Lipari, served a similar role, providing a location for metallurgical activities and a safe meeting place for exchange between east and west (Giardino 1998: 162–3; Bernabò Brea 1985; Bernabò Brea and Cavalier 1980). At Lipari, the arrival of settlers from Greece in the seventeenth century, and possibly earlier, brought about a complete change in the Bronze Age culture of the island to that called "Capo Graziano." This culture is characterized by the Mycenaean ceramics that

provide some of the first evidence of long-distance contacts between the Aegean region and the west. The local inhabitants moved to a high, defensible site with the arrival of the Mycenaeans, possibly because the seas had become more dangerous because of the increased maritime activity. The incentive for the Mycenaean settlement was the obtaining of raw materials, alum for the tanning of leather, sulfur, and above all, metals, including tin from the distant Cassiteride islands,[69] for which they exchanged luxury products, especially perfumes, unguents, and liquor. The island became one of the more advanced emporia in this commerce, regularly visited.

As Map 6.1 shows, Vivara occupied an especially strategic position for controlling entry into the Gulf of Naples. Despite its lack of metals, it developed an industry making and distributing copper and bronze objects (Giardino 1998). Providing an important maritime crossroad, evidence now shows that Vivara was the site of a "significant proto-Mycenaean port of trade" (Giardino 1998; Giardino, Merkouri, and Pepe 2008; Marazzi 2008; Marazzi, Mocchegiani Carpano, and Giardino 1998) between the second half of the seventeenth century and the first half of the fifteenth century BC. Recent finds of tokens made from Aegean pottery, and a fragment of a tablet with numerical notes that is similar in shape to palm-leaf Mycenaean clay tablets, attest the use of writing on the island, already widespread in the Aegean area (Giardino, Merkouri, and Pepe 2008: 216). The fine pottery found at Vivara has close parallels with pottery from the northeastern and southwestern Peloponnesus and the islands of Kythera, Kea, and Thera, as noted above; analysis has shown, however, that it was locally manufactured, using clay that probably came from Ischia. Coarse ware finds include vessels suitable for transport (Giardino, Merkouri, and Pepe 2008: 221–3).

The offshore islands of Lipari and Vivara provided the relative safety that attracted traders seeking metals and metal artifacts in strange waters. In both cases, settlements without metal sources developed metallurgical production to provide both worked metals and metal artifacts to visiting traders. It is noteworthy that Vivara lies between Naples on the mainland and the somewhat larger island of Ischia (Pithekoussai), where the Greeks of the ninth century BC followed a similar pattern of offshore settlement associated with metallurgical production.

Sardinia

In Sardinia, the Nuraghic culture emerged about 1600 BC, named from its most characteristic building type, the nuraghe. These massive rock towers, constructed from large, roughly cut rocks, were used as homes and fortresses. Over time, they became increasingly elaborate with more complicated floor plans, interior dividing walls and turrets. Many large nuraghi were surrounded by villages of small huts used as workshops and lower-class dwellings. Today, approximately 6,000 nuraghi still survive as archaeological monuments.

The Nuraghic people were skilled metalsmiths. Since the 1980s, about 100 nuraghic hoards from all over Sardinia have been found, consisting of artifacts of bronze, made using ingots of Cypriot copper, of local copper, and also of pre-alloyed bronze. They were also skilled traders who developed extensive long-distance connections

throughout the western Mediterranean, including Italy, Sicily, the Balearic Islands, and Spain and, to the east, Mycenaean Greece and Cyprus, thus playing an important role in the active maritime life of the central Mediterranean in the second millennium (Begemann *et al.* 2001).

The Balearic Islands

In the far west, the Balearic Islands occupied a strategic position in maritime activities similar to that of Lipari and Vivara, providing "access to or even control over traffic" in metals (ingots, axes, and other artifacts), and acting as the central point of a "maritime interaction sphere" that linked the coastal sites of Iberia, southern France, and Sardinia (see Chapter 5) (Lewthwaite 1985b: 221–4).

Iberia

In Iberia, the culture of Los Millares (see Chapter 5) was superseded by that of El Argar. These people lived in nucleated villages similar to those from Los Millares, but their burial practices attest to a quite different ideology and culture: they buried their dead in urns or cists under the floors or within the walls of the houses of the living, rather than in communal tombs outside occupied villages. The burials show a marked variability in wealth, suggesting a process of social stratification which peaked around 1800–1700 (Chapman 1995: 35). In the Bronze Age there was an increase in the frequency of metallurgy, with five times the number of artifacts as are known from the Chalcolithic. Silver and gold were employed as well as copper, and tin bronze was produced from about 2500 BC, although it did not lead to the rapid replacement of copper for the production of artifacts. Nonetheless, El Argar is characterized as a Bronze Age culture, in contrast to the earlier third-millennium copper cultures of Los Millares and the Valencina Valley.

The Eruption of Thera

In the midst of this developing Minoan maritime and palatial activity – at a date uncertain, but much debated – the volcano on Thera erupted, burying the Theran town of Akrotiri. The inhabitants were able to evacuate the town before the eruption, presumably forewarned by a series of earthquakes. The ruins of the buildings have subsequently been excavated to reveal multistory houses on narrow streets, with typical Minoan architectural features: a lustral basin, one apparent light well, pillar-and-door construction, large central pillars, frescoes, the use of timber in wall construction to lessen earthquake damage, and a drainage system. Other evidence of Cretan influence includes the use of a Minoan system of weights, some inscriptions in Minoan Linear A script on jars (but no tablets), Minoan symbols such as the Horns of Consecration, and more Minoan pottery than at any other site, even on Crete itself, with the exception of Knossos.

The interiors of many of the houses were decorated with frescoes portraying people involved in daily activities: fishermen, children boxing (possibly a puberty rite) (Marinatos 1989–90). The West House is home to the Expedition Fresco: miniature wall frescoes running in a frieze along the top of the walls. A fleet of ships is portrayed taking part in a festival while other ships are engaged in an expedition to an area with a landscape that looks quite African and in an attack on a town, as people on the hills above, dressed in animal skins, appear to go about their daily routines (Warren 1979; Morgan 1988). In one room, wall decorations appear to replicate a ship's cabin as it appears in the Expedition Fresco, and the house has therefore been identified as the captain's house.[70] This interpretation would support the hypothesis of a Minoan thalassocracy. Caution is suggested, however, by another reading of the scenes in the fresco that sees striking similarities with themes familiar from Homeric poetry: the juxtaposition of a city at war and in peace, the cattle raid, the attack on a city, Egypt as a land of fantasy. Evidence that epic poetry began as early as the Mycenaean and Minoan periods is growing, and the Expedition Fresco may reflect this (Hoekstra 1981; Morris 1989).[71] The events it portrays may not have been a biographical record of the life of the owner of the house but episodes in a favorite epic poem recited at banquets of Theran men who gathered in this room to drink and listen to bards relate tales of far-off adventures.

In fact, the miniature fresco portraying ships at sea and buildings along the shore was popular in wall painting at the time. In addition to the scene at Thera, examples have been found at Ayia Irini on the island of Kea, and in the Levant at Tel Kabri in Israel (Morgan 1990; Niemeier 1990a; 1991; 1995b; Kempinski and Niemeier 1993; Kempinski 2002; Niemeier and Niemeier 2000).[72] This attests a widespread *koine* in which artistic craft was shared as well as the adventures of oral poetry.

In seeking a date for the eruption, scholars whose primary focus lies in preserving the existing chronological framework of the Mediterranean area as a whole tend to opt for the traditional date of ca. 1530, which is primarily based on complex issues of ceramic parallels between Cyprus, Crete, and Egypt, while others follow radiocarbon and other scientific dating methods. Bietak, the principal excavator of Avaris, argues on the basis of these ceramic parallels and pumice finds that the most probable date for the eruption is the conventional one, sometime in Egypt's early Eighteenth Dynasty, most probably before the reign of Tuthmosis III (2003). Emphasizing the fact that a scientifically determined early date has not been securely proven, Bietak points out the disastrous consequences for Egyptian and Near Eastern chronology if it should be proven – although, allowing that, he is prepared to accept and cope with a *securely* established early date.

Recently, however, studies based on carbon-14 dates from the surrounding region combined with consideration of cultural phases and Bayesian statistical analysis have coincided to make a date in the later seventeenth century seem most likely (Manning *et al.* 2006).[73] The result is a new "high" chronological scheme for the initial Late Minoan period (LM IA, IB and II), which stretches it out by about a hundred years, requiring the reassessment of the standard associations between the Egyptian and Near Eastern historical dates and those in the Aegean and Cyprus in the mid-second millennium BC. In cross-dating, the resulting high chronology links the peak of the New Palace period in Crete (MM III–LM IA), with the Shaft Grave period on the Greek mainland (late MH and LH I); the MC III – LC IA phase on Cyprus; and the

later Middle Bronze Age of the Levant; while the Second Intermediate Period in Egypt comes close to fitting (1650/1640–1540/1530).[74]

It is puzzling, however, that, whatever date is chosen for the eruption, there is no evidence that it had momentous effects on neighboring areas of the eastern Mediterranean (Kuniholm 1990: 16). A possible explanation for this has been provided by evidence that an earlier eruption, the Cape Riva eruption, occurred 18 ka ago (21,950 cal. years BP) (Druitt & Francaviglia 1990),[75] and had already created a caldera; consequently the second-millennium eruption would not have produced the same volume of magma as would have been the case had that eruption been the first (Druitt and Francaviglia 1990). On the other hand, Driessen and MacDonald (1997) have argued that the eruption did in fact have long-term consequences, contributing to the eventual collapse of Minoan society in the face of Mycenaean attack.

Notes

1 Egyptian chronology in the Middle Kingdom rests upon a backward dating from a known date, the heliacal rising of the Sothic star (probably Sirius) in AD 139/42, but there is a dispute about where the observation of this event occurred, with most choosing Memphis, others Elephantine (also see Kitchen 1991). From this fixed point, the list of reigns with dates given in the Turin Canon provides a chronological framework, but it does not always fit well with other evidence, and the results are far from secure or agreed. I have followed the dates given by Kitchen (1987: pt 3: 152–9), based on a rising at Memphis, rather than Elephantine, as being the most likely. In all, however, the maximum difference involved in the choice of one location over the other for the rising is 27 years. The end of the Middle Kingdom is a matter of definition, because it was a confused period and there is no clear date for the beginning of actual rule by the Hyksos. The date of the end of the Twelfth Dynasty is 1786 BC, but the chronology of the Thirteenth Dynasty is obscure.

   Kitchen's dates for the Twelfth Dynasty are as follows:

   - Amenemhat I (Sehetepibre) 1963–1934
   - Senusert I (Kheperkare) 1943–1898
   - Amenemhat II (Nubkaure) 1901–1866
   - Senusert II (Khakheperre) 1868–1862
   - Senusert III (Khakaure) 1862–1843
   - Amenemhat III (Nimaartre) 1843–1798
   - Amenemhat IV (Maakherure) 1798–1789
   - Sobekkare/Sobekneferu (Sobeknofru) 1789–1786

2 http://www.touregypt.net/featurestories/mentuhotept.htm (accessed March 8, 2011).

3 Remains have not been found.

4 For *Sinuhe* see http://jennycarrington.tripod.com/JJSinuhe/text.html 9 (Berlin 3022, 11–20) (accessed March 8, 2011); for *Neferty* see 15 (Papyrus Hermitage 1116B, lines 65 to 71) at http://www.digitalegypt.ucl.ac.uk/literature/nefertytransl.html (accessed March 8, 2011).

5 http://en.wikipedia.org/wiki/Senusret_I (accessed March 8, 2011).

6 Now in the Cairo and Louvre museums; Pierrat-Bonnefois (2008), http://www.archaeowiki.org/Tod_Treasure (accessed March 8, 2011) and http://www.touregypt.net/featurestories/todtemple.htm (accessed March 8, 2011).

7 Mycenaean or Cretan origins for the material put it at too late a date (see Lilyquist 1993).
8 Granulation in gold jewelry, which is first attested in the Royal Burials at Ur (2600–2500 BC), was used in Byblos ca. 2000, and in Crete shortly thereafter, thus in MM IA (Higgins 1980: 22–3; Lilyquist 1993).
9 A *deben* was a measure in the form of a ring of metal, usually used for copper, occasionally for silver; a deben of silver weighed in modern terms approximately 91 grams (Jannsen 1975: 101).
10 The second flourishing phase at Mari began ca. 1900 and lasted until its destruction in 1759 BC by Hammurabi of Babylon.
11 The discharge points for underground streams.
12 http://www.uk.digiserve.com/mentor/minoan/juktas.htm (accessed March 8, 2011).
13 http://www.fas.harvard.edu/~semitic/wl/digsites/Islands/MtJuktas_02/index.htm (accessed March 8, 2011).
14 Some would add Zachros, smaller, but with most of the characteristics of a monumental courtyard building, although its early Protopalatial stages are unclear. Additional candidates have recently added to this list, but most are not sufficiently excavated to determine exactly where they fit into the picture.
15 Shaw and Shaw (1993: 186): "court centered civic buildings"; Schoep (2002a): "court-yard buildings"; Driessen (2004: 86): "ceremonial court centres."
16 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/10.html#8 (March 8, 2011).
17 http://www.uk.digiserve.com/mentor/minoan/agtriada.htm (accessed March 8, 2011).
18 The Wikipedia site provides an extended discussion and references: http://en.wikipedia.org/wiki/Phaistos_Disc (accessed April 12, 2009).
19 Phillips (2008: 1: 27), however, sees it as problematic as a palace.
20 http://www.uk.digiserve.com/mentor/minoan/malia.htm (accessed March 8, 2011).
21 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/12.html#13 (accessed March 8, 2011).
22 The web site of the excavation can be found at http://www.fineart.utoronto.ca/kommos/kommosIntroduction.html (accessed March 8, 2011).
23 But owing to differences in form and scale, it is not included among the "palatial" courtyard buildings by Schoep (2006: 39).
24 On the contrary, Carinci (2000) disputes the significance of the Mesara in the development of trade. http://www.fineart.utoronto.ca/kommos/kommosIntroduction.html (accessed March 8, 2011).
25 http://www.uk.digiserve.com/mentor/minoan/zakros.htm
26 This paper is also at http://www.athenapub.com/11petras.htm (accessed March 8, 2011). See also http://www.uk.digiserve.com/mentor/minoan/petras.htm (accessed March 8, 2011).
27 Most recently, Baird argued that pyroclastic surges (gas blooms of mainly superheated dry steam) generated from the eruption of the Theran marine (sea-level) volcano struck large areas of central and eastern Crete and set them ablaze, destroying the first palaces: http://www.minoanatlantis.com/LM_IB_Destruction.php (accessed March 8, 2011). The destruction on Crete, however, seems to have been less uniformly catastrophic than this hypothesis suggests.
28 I use the traditional term "palace" for these building complexes, although the arguments against it remain strong: we have no evidence that these buildings were used for a king or queen, or that they, as "palaces," contained the living quarters of such royal figures. A number of scholars see these buildings as temples or other religious structures. Nevertheless, the term "palace" has remained, even in the work of those who advocate for the terms "courtyard

building" or "courtyard complex." It is especially awkward to express the distinction between the Old and the New Palaces (Protopalatial, Neopalatial) in courtyard terms. Thus, especially in the New Palace period, we are back to the use of "palace." For a general discussion of the palaces, see Cadogan (1976); and the *Athena Review* 2003 issue; aerial photographs of sites and complete bibliographies can be found in Wilson Myers, Emlen and Cadogan (1992).

29 The absolute date for the start of the New Palaces is currently under discussion. Of crucial importance for the absolute chronology of the phases MM III–LM IB is the date of the eruption of Thera. Niemeier now accepts the radiocarbon dates indicating that the eruption occurred within the seventeenth century; a date of 1628 becomes more and more probable. The start of LM IA is then around 1700 BC, and that of MM III being around 1800 or a little later (the "higher" chronology) (Niemeier 1994: 72–4).

30 http://www.uk.digiserve.com/mentor/minoan/malia.htm (accessed March 8, 2011).

31 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/10.html#11 (accessed March 8, 2011).

32 http://www.uk.digiserve.com/mentor/minoan/phaistos.htm (accessed March 8, 2011).

33 http://www.uk.digiserve.com/mentor/minoan/agtriada.htm (accessed March 8, 2011).

34 http://www.uk.digiserve.com/mentor/minoan/galatas.htm (accessed March 8, 2011).

35 http://www.uk.digiserve.com/mentor/minoan/galatas.htm (accessed May 25, 2011).

36 http://www.uk.digiserve.com/mentor/minoan/nirou.htm (accessed March 8, 2011).

37 http://www.uk.digiserve.com/mentor/minoan/vathypetro.htm (accessed March 8, 2011).

38 http://www.uk.digiserve.com/mentor/minoan/pyrgos.htm (accessed March 8, 2011).

39 For a review of the various models, see http://projectsx.dartmouth.edu/history/bronze_-age/lessons/les/11.html

40 Wiener's "Versailles Effect."

41 Arsenical bronze, although available and sometimes occurring naturally, was a poor substitute, creating poisonous conditions in smelting. Pre-alloyed tin bronze from an unknown source was available in the Troad from the third millennium and was traded (see Chapter 5).

42 See the papers in *JMA* 5 (1992) for papers in the debate, and Moorey (1994: 300–1) for a realistic assessment of the difficult evidence.

43 MacGillivry (2008: 48) lists (with references) finds at Ashkelon, Hazor, Byblos, Beirut, Ugarit, and Quatna that have parallels in north central Crete's MM IIB and MM IIIA periods.

44 White and White (1996) detailed all the possible sites on an inhospitable coastline and found only Marsa Maruh to be a viable choice (White *et al.* 2002; Hulin 1989; Negbi 1994: 89).

45 After MM II/III, the production of Cretan scarabs did not continue, see Pini (2000: 112). Scarabs dating from the late Middle Kingdom (ca. 1850–1700), which were mass produced, are known from outside Egypt only at Byblos.

46 Shaw (1970) dates it to the reign of Sesostris I and to the period 1971–1928. Sesostris, the invention of Herodotus, is now identified with Senusert III, who, according to Kitchen's 1987 chronology, ruled from 1862–1843.

47 See http://www.museum.upenn.edu/new/exhibits/ur/about.shtml (accessed March 9, 2011).

48 http://www.britishmuseum.org/explore/highlights/highlight_objects/aes/t/the_london_medical_papyrus.aspx (accessed March 9, 2011).

49 http://www.britishmuseum.org/explore/highlights/highlight_objects/aes/b/bronze_arched_sistrum.aspx (accessed March 9, 2011).

50 http://www.herbnet.com/DITTANY%20OF%20CRETE.pdf (accessed March 9, 2011).

51 http://ancient-coins.com/resourcedetail.asp?rsc=8 (accessed March 9, 2011). The site has more information about the plant and pictures of representations on seals and coins.

52 The term "modularity" is employed by Preziosi for "replicated regularity in the geometric relationships of masses and spaces comprising a building, yielding groundplans composed of space-cells whose dimensions were simple fractions and multiples of each other" (1983: 320); on modular planning, see also Schmid (1986).
53 MM III–LM IB period. Heraklion Museum Inv.no. T 15. Cf. A. Evans, 1964: 3: 209–14. The earliest Mycenaean frescoes so far discovered come from dump deposits at Mycenae and probably date to the LH IIA period of the late sixteenth or early fifteenth century BC. http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/24.html#3 (accessed March 9, 2011).
54 Woolley saw a Near Eastern origin of the Minoan paintings; however, his date for Alalakh VII was too high; with the new lower date of Alalakh and the new, higher date for the eruption of the Thera volcano, Akrotiri and LM IA become contemporary with Alalakh VII in the seventeenth century BC (Niemeier 1995b: 10 and n. 49; Niemeier and Niemeier 1998). Frescoes at the palace of Zimri-Lim at Mari in Syria, are fresco secco and date to the early second millennium, possibly even before the Neopalatial period (see Muller 2005).
55 http://www.mlahanas.de/Greeks/Cities/Amnisos.html (accessed March 9, 2011).
56 Niemeier and Niemeier (1998: 93) doubt that landscape and architecture could be transmitted by textiles, but see Chapin and Shaw (2006: 86–8).
57 Date from Rutter's web site: http://projectsx.dartmouth.edu/classics/history/bronze_age/ (accessed May 25, 2011).
58 http://www.touregypt.net/featurestories/gizavillage.htm (accessed March 9, 2011).
59 http://www.casa.ucl.ac.uk/digital_egypt/hawara/enco2000/enco2000_web.html (accessed March 9, 2011).
60 Three headless statues of the queen have been discovered in the Faiyum, and a few other items contain her name. In a statuette in the Metropolitan Museum in New York the queen wears a sed-festival cloak and an unusual crown, which may have resulted from an attempt to combine unfamiliar iconographic elements of male and female rulers (Shaw 2000: 170; Callender 2000: 159, and figure on p. 170; Leprohon 1996: 170–1).
61 http://www.ancient-egypt.org/index.html (accessed March 9, 2011).
62 Dating it to the MM IIB–IIIA period (Walberg 1991: 117; 2001: 17; Bietak 1997: 115–25; Bietak, Marinatos, and Palyvou 2007).
63 The alabaster lid inscribed with the name of the Hyksos king Khyan found in the palace at Knossos was possibly deposited as an heirloom long after its date of manufacture (Evans 1964: I, 419; Betancourt 1997b: 429).
64 http://dlib.etc.ucla.edu/projects/Karnak/resource/ObjectCatalog/1838 (accessed March 9, 2011).
65 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/9.html#17
66 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/16.html#top (accessed March 9, 2011).
67 Rutter's Aegean web site (http://projectsx.dartmouth.edu/classics/history/bronze_age/ (accessed May 25, 2011)) discusses the many possibilities, see n. 202.
68 http://www.indiana.edu/~sava/database.htm (accessed March 9, 2011).
69 A source of tin at the ends of the earth; Bernabò Brea suggests Britain, although Herodotus disclaims knowledge of its location (*Histories* III 115). But small amounts of casserite were present in Sardinia and Tuscany (Giardino, Merkouri, and Pepe 2008: 223).
70 But see Morris, above, n. 46.
71 The existence of epic poetry in the fifteenth century is argued by West (1988).
72 http://www.tau.ac.il/humanities/archaeology/projects/kabri/history.html (accessed March 9, 2011).

73 Of the various individual studies, the results from the carbon-14 testing of a live olive branch killed by the eruption (Friedrich *et al.* 2006), which was incorporated into the study of Manning *et al.* (2006), seems most convincing; it is unclear, however, if Bietak has been convinced.

74 Thus, the chronological link is not with the early New Kingdom in Egypt (Eighteenth Dynasty, 1540–1295), as previously thought.

75 Wulf *et al.* (2002) give 22 ka.

Chapter 7

Late Bronze Age Maritime Networks

In the second half of the second millennium – the Late Bronze Age – an intense network of maritime routes operated throughout the Mediterranean in what has been called the "International Age" (Linder 1981: 32). Some routes were long distance and direct; others called at various ports in a fairly regular great circuit; some were "tramping," seeking markets wherever opportunity arose; and some simply moved back and forth between nearby local ports. Some of the smaller ports, often located on offshore islands, acted as emporia in which goods could be exchanged and sent on to inland sites or to new maritime routes. And of course, since the profits could be great, pirate ships followed these routes as well. In this complex of activity, some of the long-distance routes linked sites from the Levant to Iberia, but moved by way of intermediate ports, creating not straight line routes but a Mediterranean network, which itself included connecting local networks, such as those within the Levant–Cyprus, the Aegean, the central Mediterranean, and Iberia and the far west. In this way, the Mediterranean functioned as a vast interactive complex, a "Fantastic Cauldron" as Jean-Paul Morel has called it (1984: 150). Thus, despite the undeniable agrarian basis of the economies of all ancient peoples, the "model" within which to view the birth of the new polities, such as the Greek *polis*, is not that of the isolated farmstead, but rather that of this "fantastic cauldron" of Mediterranean maritime interactions.[1]

Egypt

After the expulsion of the Hyksos and the destruction of their capital Avaris, Ahmose was determined to unify Egypt and to insure that it never again fell under foreign control. Turning to traditional methods of assuring control, he campaigned in the south against neighbors with uncertain borders and rich resources to obtain treasure to enhance his esteem at home. Meanwhile, he also embarked on building projects within Egypt to embody and advertise his power. He also established a royal marriage policy in

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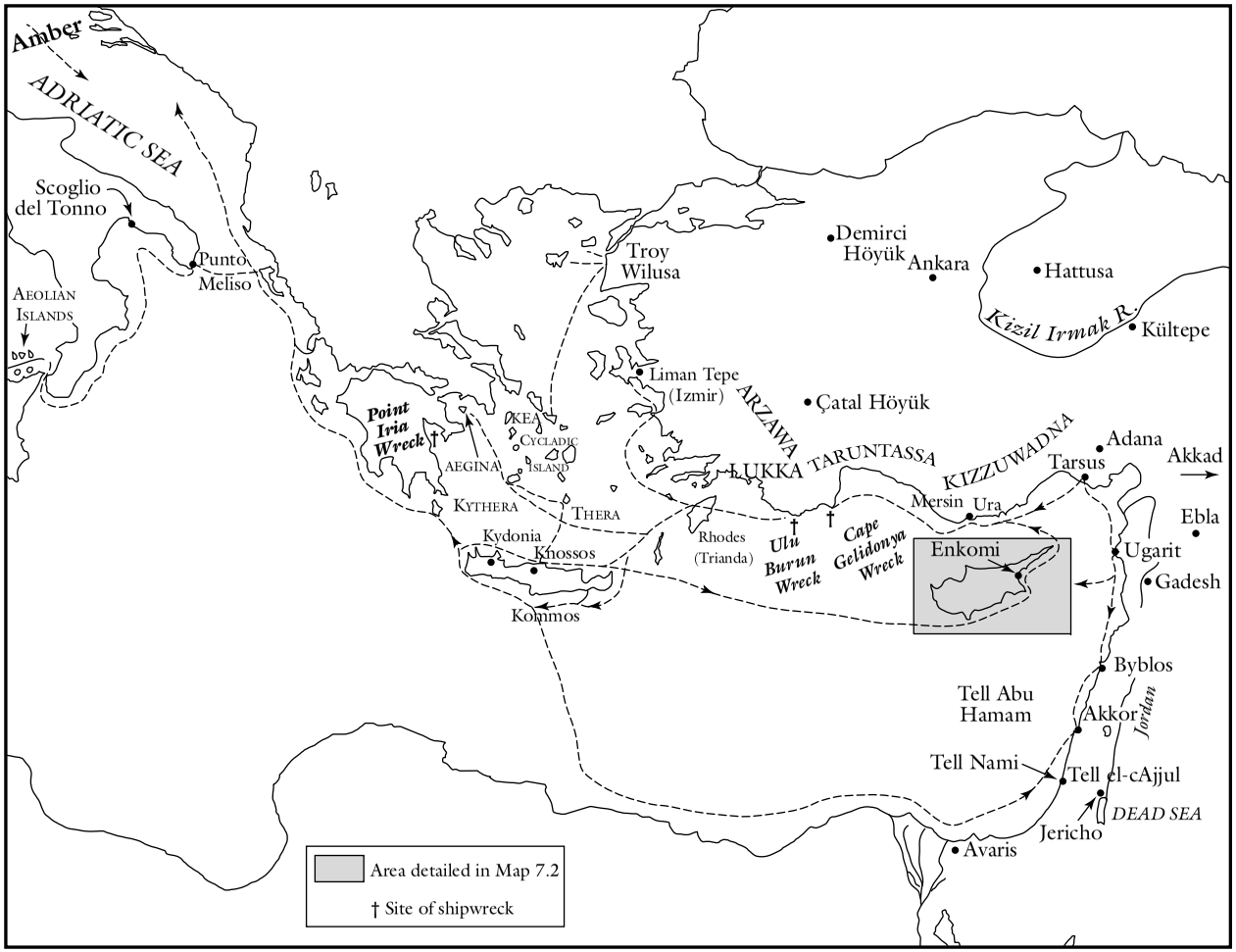
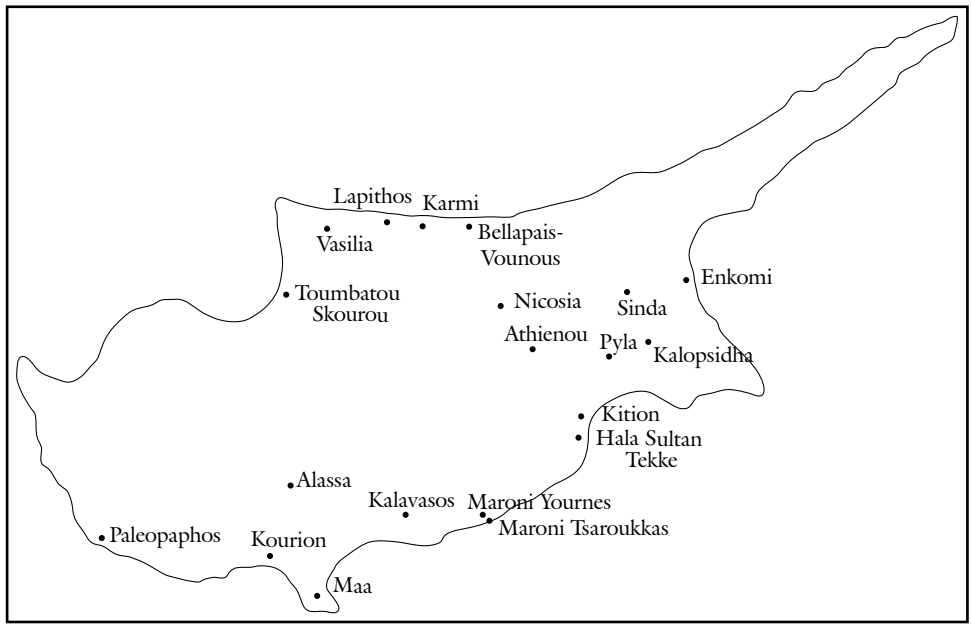


Map 7.1 Sea routes in the Late Bronze Age East.



Map 7.2 Cyprus in the Late Bronze Age.

order to avoid the danger of usurping sons-in-law and to keep royal power within the family, restricting the marriage of royal princesses to Egyptian kings. While in effect this limited the marriage partners of royal daughters to their fathers and brothers, genetic catastrophe was avoided because kings could marry out and have any number of wives. The system of royal marriages at the same time protected the royal line at home and became a powerful tool of diplomacy and state interaction. Foreign wives brought rich dowries and, while often submerged within the Egyptian system – thus the king of Babylon complained that his sister, given to the Egyptian king in marriage, had not been seen since and no one knew if she was alive or dead (Moran 1992: 1: 10–17) – they could nonetheless be brought out on occasion to make diplomatic points. And Egyptian royal women sometimes played prominent roles in palace politics in the New Kingdom, as mothers or regents of young kings. Such a role, in the exceptional case of Hatshepsut, even led to her formal exercise of power as pharaoh.

After the expulsion of the Hyksos, the trade that they had developed continued to flourish. Egyptian traders and administrators visited ports all along the Palestinian and Levantine coast, and these smaller ports continued to serve trade with Cyprus and neighboring Levantine ports. Byblos continued to be the primary supplier of cedar logs to Egypt, and its rulers continued their policy of adopting Egyptian royal symbolism to enhance their own power.

At Tell el-cAjjul, a harbor site about 10 kilometers south of modern Gaza, which had been a center for Hyksos trade with Cyprus (Fischer 2004), this continuation of trade can be seen. The excavators noted an "amazing" number of imports, including high quality jewelry, an unparalleled number of scarabs (around 1,250), and more Cypriot imports than any other site in the eastern Mediterranean. The site functioned as the main trading center of the area and a center for distribution of Cypriot imports.

Accordingly, the excavators suggested that the city may have had a monopoly of trade with certain major Cypriot production centers, distributing Cypriot goods to other sites in the southern Levant and Egypt (Fischer 2003: 290; 2004: 260–1).

Ahmose was succeeded by his son, Amenhotep I, who continued the policies of his father. He began the building project of the royal tombs in the Valley of Kings, and he and his mother Ahmose-Nefertari were quite likely the founders of the Workers' Village at Deir-el-Medina, built to house the workers who built those tombs (Lesko 1994).[2]

The next Pharaoh, Thutmosis I, further extended the borders of Egypt's empire, in the north reaching Carchemish on the Euphrates, and going beyond the fourth cataract to the south. His successor, Thutmosis II, died early, leaving only an infant son, Thutmosis III, to inherit the kingship. The widow and sister of the deceased king, Hatshepsut, ruled for 21 years, at first as regent for the infant, and then as co-regent with him.

Hatshepsut is one of the best known of the rulers of New Kingdom Egypt. Not only was she unusual in being a woman, but her reign was in many ways spectacular. Her building program far outdid that of her predecessors with its high point, the great terraced temple of Hathor at Deir el-Bahri. Her foreign exploits included not only the usual expeditions to Nubia but also a spectacular – and spectacularly advertised – trade mission to Punt, which brought back treasures of gold, incense, incense trees to plant, ivory tusks, panther skins, and live elephants, an achievement celebrated on the walls of her temple at Deir el-Bahri.

Among the building projects of the co-regency of Hatshepsut and Thutmosis III, according to Bietak, Marinatos, and Palyvou (2007: 18), was the building of a new palace at Avaris on the foundations of the destroyed Hyksos Citadel. It is to this palace that Bietak attributes the Minoan-style frescoes, fragments of which were found in the remains of Palaces F and G (Palyvou 2007: 26). These fragments, however, included explicit symbols of the power of Knossos: bull leaping and the maze pattern. The idea that they were painted by, or for, Egyptians, who were at that time intent on aggrandizing Egyptian power and culture, is puzzling. Bietak, however, suggested that they may have been painted in celebration of the marriage of a Minoan princess to the Pharaoh. Bietak's explanation, and his attribution of the frescoes to Hatshepsut and Thutmosis, however, rests upon his acceptance of the traditional "low" (sixteenth century BC) date for the volcanic eruption of Thera that buried the wall paintings on that island. However, according to the "high" chronology for that event, based on radiocarbon and other scientific evidence, which is now well supported if not universally agreed upon (ca. 1628 BC, see Chapter 6), the difficulty is removed, for the frescoes date to the period of the Hyksos' control at Avaris, a time when they were actively seeking trading partners in the eastern Aegean, including Minoan Crete.

Despite persistent rumors of Hatshepsut's intention to usurp power, Thutmosis III survived the co-regency to become one of the strongest and most aggressively expansive rulers of the New Kingdom. His constant campaigning included a spectacular feat in which, while fighting against the Mitanni in Nahrin (Syria), he disassembled a fleet of ships, had them carried across the mountains to the Euphrates river, and then had them reassembled in order to surprise and defeat the Mitanni forces (I. Shaw 2000: 246–7). During the successive campaigns that brought him to this victory he also gained control

over the coastal cities, including, notably, Ugarit, although he was never able to maintain control in the interior of Syria.

Thutmosis III was followed by a succession of rulers who enjoyed relatively stable and peaceful conditions that enabled them to resolve difficulties with their neighbors and pursue their goals by diplomacy and diplomatic marriages rather than by conquest. Thus, Thutmosis IV (1400–1390 BC) finally established peace with the Hurrians by means of a diplomatic marriage, and his son and successor Amenhotep III (1390–1352 BC) married two princesses of Mitanni, two Kassite princesses, and one princess from Anatolia.[3]

Amenhotep IV (ca. 1352–1336 BC), the successor to Amenhotep III, inaugurated a new era when he focused state worship on a formerly minor god, the Sun Disk, or Aten. He expressed this change by himself adopting a new name, Akhenaten, and building a new city to be the capital, which he called Akhet-Aten (today: Amarna/Tell el-Amarna) in honor of the Aten.[4]

Akhenaten's vast and grandiose new city of Akhet-Aten, abandoned and destroyed by his successors, is exceeded by far in historical importance by the discovery of the diplomatic correspondence found at Amarna and known as the Amarna Letters. Inscribed in Akkadian cuneiform on clay tablets, the letters were discovered in 1887 by a village woman digging ancient mud-brick for use as fertilizer.[5] Amounting to some 382 tablets, they date from late in the reign of Akhenaten into the reign of Ay, ca. 1386–1321 BC, Moran (1992: xxxix). They include about 50 letters written to the king of Egypt in the Amarna period (Moran 1992; Cohen and Westbrook 2000). There are letters from the kings of Mitanni, Babylonia, Assyria, and the Hittites; from the rulers of small independent kingdoms that did not quite reach great king status – Arzawa, a kingdom in southwestern Anatolia (Lydia), and Alashiya (Cyprus) (Cohen and Westbrook 2000: 7–8);[6] and from the rulers of vassal states. While it includes no original Egyptian letters, a few letters appear to be copies of letters sent by the Egyptian king to others (pp. 6–7).

The Amarna letters reflect the highest level of Late Bronze Age exchange, a system of diplomatic relations and gift giving between the major powers that was expressed in the metaphors of family relations (Cohen and Westbrook 2000). The great kings usually addressed each other as "brother," expressing equality and commitment to mutual support; vassals were addressed (if at all) as "son," indicating their subordinate status (Cline 1995a; Cohen and Westbrook 2000; Cohen 1996; Bryce 2003: ch. 1). These terms were not used lightly, but had real significance, and the relationships they expressed were jealously guarded – the use of the appropriate address in requests was vital, lest one be rebuked as presumptuous. Thus in one letter, the Hittite king complained sharply to the Assyrian ruler, a relative upstart among the kings, "Why should I write to you in terms of brotherhood? Are we sons of the same mother?" (Beckman 1999).[7] Although membership, and status as well, were relatively stable in this system, both were subject to change as family conditions and spheres of influence fluctuated over time. In a few instances, smaller kingdoms appear to have qualified for inclusion among the great kings because of special circumstances or even actual familial relationship. Thus the not-quite-Great Ruler of Alashiya (Cyprus) regularly called Akhenaten "my brother" (Moran 1992: EA 33–9), although Bryce (2003: 84) suggests there may have been an actual blood relationship in this case. Mycenaean Greece

(Ahhiyawa) lived on fringes of this elite group. There is only one letter in the archives in which a great king, the Hittite ruler Hattusili III, addressed a ruler of Ahhiyawa as "my brother" and as a "Great King." This was the Tawagalawa letter (CTH 181) (Laroche 1971); see Bryce (1989a; 2005: 290–3; Hawkins 1998), which contained an abject appeal for help in curbing the continuing attacks by Piyamaradu, an Ahhiyawan subject, on the Hittite territories, and thus it may be considered exceptional. In the treaty that finally brought these Hittite struggles with the Ahhiyawans to an end – the Shaushgamuwa treaty – the ruler of the Ahhiyawans was peremptorily erased from the list of great kings signing the treaty (CTH 105) (Laroche, 1971); see Bryce (1989b: 304–5; 1989a: 16–17).

Another collection of letters and documents, the archives of the Hittites,[8] adds to the evidence for the period, as do several archives at Ugarit.[9]

The family relationships expressed in these letters were cemented by an elaborate system of rules and well-understood – if not always honored – expectations involving diplomatic gifts, rich dowries, and tribute. Gifts ranged from gold vessels and finely crafted jewelry, precious gems, perfumed oil, fine furniture, expertly woven textiles and elaborate clothing, horses, and chariots, to timber, grain, copper, concubines, and even doctors. These gifts played a central role in the economy of the region. Although they were couched in terms of gifts, as tokens of the familial relationship between the two parties, the expectation was that they would be returned by gifts of equal value. Sometimes, the value of the expected return was even stated, as in the case of the letter from Amenhotep III to Milkilu of Gezer (not a great king, and the term "brother" is not used): he has sent a gift worth 160 deben in order to get 40 concubines, each worth 4 deben; thus the value of the return gift would be 160 deben, a fair and equal transaction.[10] When the expected return was not forthcoming, complaints were soon in order. This system of enabling and regulating peaceful trade and exchange brought a period of notable prosperity to the area.

Akhenaten's religious/political reforms were rejected by his short-lived successor, Tutankhamen. The capital was moved back to Thebes and Akhenaten destroyed. The Eighteenth Dynasty ended with Horemheb shortly before 1308; he lacked an heir and appointed his vizier and general, Ramesses, to succeed him, thus inaugurating the Nineteenth Dynasty. Egypt's attention now focused on containing Hittite expansion in Syria. Ramesses' son and co-regent Seti I concluded a treaty with the Hittites, but it was ineffective, and it was left to Seti's son and successor, Ramesses II – Ramesses the Great – to bring a lasting peace between Egypt and the Hittites by the battle of Qadesh in 1285. Although both sides claimed victory, the battle was not decisive; nevertheless, it ushered in a long period of peace and prosperity, during which Ramesses conducted a monumental building program and maritime activity flourished.

Cyprus and Ugarit

The most frequent agents in this maritime traffic were not the Great Powers themselves, but Cyprus and the smaller coastal kingdoms, of which Ugarit at this time was preeminent (Astour 1965; Heltzer 1977; Linder 1981; Yon 1992), upstaging Byblos

by reason of its excellent harbor. Not surprisingly, Ugarit had one of the most active fleets in the Mediterranean.[11] Its ships may have sailed as far west as Sardinia (Stos-Gale and Gale 1992) and a painting at Egyptian Thebes in the tomb of Kenamun (T 162) portraying the arrival of a ship at Thebes in the time of Amenhotep III (1390–1352 BC) (Wachsmann 1998: fig. 3.2–6), which has been identified as Canaanite by the clothing and hair styles of the figures, may portray a ship from Ugarit,

Already at the beginning of the Early Bronze period, Ugarit was a true city, with a palace, although little is known of that early stage due to severe destruction by an earthquake at the beginning of the Late Bronze Age. In the thirteenth century a new palace was built to replace the one lost to the earthquake, as well as several large buildings now identified as probable residences of members of the royal family and elite merchants. The city developed profitable industries to complement its role in shipping, including ship building (Linder 1981: 38) and the production of purple dyed cloth and clothing – at least 35 different types of garments and cloth are mentioned in the texts (Heltzer 1978: 38–50). But the main items of trade were copper, obtained from Cyprus and Anatolia, and tin from central Asia, for which it served as a transit and distribution point.

Ugarit's wealth depended upon its trade. Its merchants were among its most influential citizens, some holding the status of *mariannu*, which Astour compares to the status of *hippeis* in Classical Athens (1972: 12–15). The merchants were organized in corporations that had collective responsibility for the debts, taxes, and occupational risks of the members; thus the government was essentially corporate, with the king enjoying the highest status, but not unlimited power (Astour 1972: 24–6). Foreign traders were controlled, permitted to reside in the city for only part of the year, and only in the harbor district. A number of the foreign merchants are attested – individuals from Ashdod and Tyre (pp. 17–19), and from Alashiya (Cyprus) (Knapp 1983). Among the most prominent foreign traders were merchants from Ura (Gilindere on the south coast of Turkey), which served as the port for the Hittite empire (Heltzer 1977: 210; Beal 1992). Their presence also attests to the fluctuating allegiances of the Urgarites, for Ura assisted Urgarit in providing the manpower for the ships that supplied the maritime needs of the Hittites.[12] Lying at the midpoint of Egyptian and Hittite zones of influence, in the course of time Ugarit moved from one sphere to the other, but never seems to have been totally excluded from interactions with the loser of the moment. Thus in the time of Thutmosis IV (1400–1390), the city was a vassal of the Pharaoh (Astour 1981: 16), but when the Hittites under Suppiluliuma I (ca. 1350 –1322 BC), successfully challenging the Egyptians for control of the lands between the Mediterranean and the Euphrates, the king of Ugarit, Niqmaddu, submitted to the Hittite king, becoming a Hittite vassal (Astour 1981: 20; Bryce 2005: 148–53). As a result of these shifting alliances, commercial relations with the Egyptians naturally also fluctuated; however with the peace treaty between the Egyptians and the Hittites after the battle of Qadesh in 1285 BC, an era of peace and renewed commercial activity began (Bryce 2005: ch. 1). Egyptians carried on their business dealings in Ugarit and received hereditary land grants from the king, and Egyptians and "Canaanites" were recognized as corporations (see Astour 1981: 25–6, 40 for references to the texts). By the Late Bronze Age, Sarah Morris believes, with most scholars, that Ugarit was the principal maritime power in the area (Linder 1981: 40; S. Morris 1990; Caubet 2000). Artzy

(2005: 360) called it the "banker, pulling the financial strings at first," although Cypriot interests in time came to play a major role in these trade relationships.

Cyprus: The older settlements

A number of older, well established settlements in Cyprus, dating back at least to the seventeenth century, had long been engaged in maritime activities: Enkomi, Toumba Tou Skourou, Palaepaphos, Hala Sultan Teke (see Chapter 6). References in the Amarna letters and the Ugaritic texts point to the existence of a sizable Cypriot fleet and note numerous trade items (Linder 1970: 118–19 (Cyprus sent copper); 112, 120 (received oil and grain); UT 2008 (pp. 41–3): EA 40:15; EA 35:27–8; EA 36:13. Linder 1981: 37, n. 28), and trade with the Aegean and the central Mediterranean, most notably Sardinia, is evidenced by archaeological finds (Mantzourani and Theodorou 1989; Hankey 1979; Portugali and Knapp 1985).

Of the Cypriot settlements, Enkomi had the longest life, despite growing competition in copper production. After repeated destructions and rebuildings, in LCIIA–B the Fortress was replaced by a larger, unfortified building, and there is a slackening in evidence for metallurgy, but in LCIIC this building was expanded and remodeled and metal production resumed on an even larger scale than previously (Keswani 1996: fig. 2 illustrates the expansion). The appearance of large houses and ashlar tombs signals the development of an elite neighborhood in this district, while metalworking also spilled over into the lives of ordinary people, as attested by the existence of numerous small workshops, and a souk of metalworkers that stretched along the main street (Lagarce 1971).

In late LCIIC and LCIII Enkomi was surrounded by massive Cyclopean defensive walls that encompassed an area of about 40 acres, and a grid-type street plan was established. A number of ashlar mansions and temples were built – the Sanctuary of the Horned God, Building 18, the Sanctuary of the Ingot God, and the Building of the Column – and workshop areas were scattered in several different neighborhoods (Keswani 1996: figs 3 and 4). Cylinder seals, clay sealings, and four Cypro-Minoan tablets at various locations do not, however, provide clear indications of centralized, hierarchical control. One might rather envision a number of family-centered establishments, each with its own workshops and favored sanctuary, which could co-operate in matters of city administration and planning but remained independent in much of its business dealings (Manning 1998).

Enkomi had the advantage of many and close contacts with Ugarit, going beyond the merely commercial (Negbi 1986, 1992; Malbran-Labat 1999). Even at a lower socio-economic level, people seem to have moved freely between the two centers, as Cypriots are found in the tablets in Ugarit as craftsmen, shepherds, temple officials, and even royal office holders, and the palace at Ugarit distributed rations to men and women somehow associated with the island.[13] The ruler of Ugarit even sometimes used Cyprus as a convenient place to station political undesirables (RS 17.352; RS 18.114; Knapp 1979: 199–201). Particularly interesting as evidence for the cultural consequences of such contacts are seven built tombs at Enkomi that have their closest parallels at Ugarit and its port of Minet el Beida (Negbi 1986: 111). While the use of Ugaritic tomb types might be attributed to the adoption of Syrian elite burial customs by rich Cypriot

merchants, it seems more likely that it was merchants from Ugarit, residing in Enkomi with their families who built the tombs in the tradition to which they were accustomed. Knapp (1983) argues that the trade between Cyprus and Ugarit was extensive, a "multi-directional, complex network," in which royal merchants, private individuals, and "joint ventures" may all have been operative. It is to such Levantine contacts and influences that Negbi attributes the principal impetus to Cypriot urbanization in the thirteenth century, with its characteristic marks of town planning, Cyclopean walls, and ashlar masonry.[14]

Palaepaphos, revered as a sacred shrine, fared relatively well during this period. Minor contacts with the Aegean in the later fifteenth and earlier fourteenth centuries were followed by increasing interchange until a period of Aegean immigration is suggested in the early twelfth century during the Mediterranean-wide disturbances of that time. Finds from the tombs attest that the site was a rich one at that time, rivaling Enkomi in wealth and importance. The richest of the finds date to LC IIIA (1200–1150) (Catling 1968), and include gold jewelry (Kenna 1968), carved ivory objects, and an unusual number of iron objects. While it seems clear that Palaepaphos rivaled Enkomi in wealth, it was at a somewhat later date, its peak occurring in the twelfth century BC.[15]

Other ancient sites did not enjoy such longevity. By the mid-fourteenth century, Toumba Tou Skourou was no longer playing a major role in maritime commercial activities (Vermeule and Wolsky 1990: 194–5), while Hala Sultan Tekke, as a result of silting and a great increase in maritime traffic, was replaced as a port by Kition. The other older settlements for one reason or another were superseded by newer coastal settlements linking to the mining facilities in the Troodes, that sprang up on the southern and southwestern coast of Cyprus. Some of these new cities eclipsed Enkomi in size.[16]

Kition

In LC IIC, when the port at Hala Sultan Teke became increasingly silted and inadequate for the growing levels of trade, settlement moved to nearby Kition as the area's main port (Negbi 1986: 105). According to all estimates of settlement size, Kition was at that time by far the largest of the Cypriot cities (Karageorghis 1976a: 20–1; Negbi 1986: 105).[17] Little remains visible today of the thirteenth-century city, however: parts of its mud-brick walls, parts of a quay;[18] and the remains of two temples of Near Eastern type, rebuilt in the twelfth century, with an adjacent temple garden (see Negbi 1986: 105). Quantities of copper slag found in the area of the temples suggests that metalworking had an ideological function, a supposition strengthened by the presence of metal workshops in connection with the rebuilt temples of the twelfth century (Knapp 1986a; 1988b; 1996a). The use of large stone anchors as building materials in Temple 4, and the votive anchors found in Temple 5, and elsewhere on the site, have Near Eastern parallels (Frost 1982; Åström and Svensson 2007), and further the hypothesis of connections between metalworking, seafaring (the transportation of metals), and religious cult.

Most of the evidence for the life of Bronze Age Kition comes from its tombs. An unrobbed tomb of the thirteenth century, Tomb 9, held the remains of two adult males and nine adult females, buried in two levels, separated by about 15 or 20 years (Karageorghis 1976a: 32–53). Among the many rich grave goods was a gold finger ring decorated with an engraved bird and two signs of the Cypro-Minoan syllabary; and a

finger-ring with an iron wire, the earliest occurrence of this metal in Cyprus, at a time when it was clearly still a prestige material. Especially significant was the discovery of 10 bone writing styluses, showing that in the thirteenth and early twelfth century the Cypriot-Minoan syllabic writing system was in use (Karageorghis 1976a: 30). The picture of Kition in the thirteenth century provided by burials thus complements that of the architecture, revealing the presence of an upper-class elite who lived cosmopolitan and affluent lives, with a complex trade network extending both to the east and to the west, and an economy heavily dependent on copper production and trade.

The maritime connections of Kition with the Levantine and Palestinian coasts are evidenced by the incorporation in the quay of large oblong ashlar blocks similar to those found in the harbor installations at Ugarit and at Dor in Palestine, a "Sea Peoples" settlement (Raban 1983: 239–41). In fact, Raban has suggested that the similarities between the quays at Dor and at Kition "might make one think that . . . [they] were built by people with a common maritime heritage" (1983: 240). Other evidence of maritime connections can be seen in four ship graffiti, found on the walls of two temples and an altar in Kition (Basch and Artzy 1985), which are similar to the prolific ship graffiti on a rock formation on the Carmel Ridge at Tel Nami, probably used as a navigation marker by sailors (Artzy 2006: 50). Similar ship graffiti were found at Tell Akko on the Carmel Ridge, a port active in maritime trade through much of the Late Bronze Age that also appears in the Amarna letters (Pritchard 1974: ANET: 484–5; Moran 1992 8, 88), and in texts from Ugarit (Heltzer 1978: 51).

Alassa

Alassa (see Hadjisavvas 1986; 1989; 1991; 1996; Herscher 1995; 1998: 328–30),[19] a site inland from Limossol, was established in the thirteenth century BC, probably as an administrative center in the system of copper production. As such, it possessed monumental ashlar buildings. The remains of two of these buildings, constructed in LC II, are now viewed as part of a complex consisting of a wide street and other ashlar buildings (Hadjisavvas 1996, see esp. 25–8 and fig. 5). Of these, Building II, which covers an area of 1,410 square meters, is one of the largest buildings known from Late Bronze Age Cyprus (see Herscher 1998: 328–30 and figs 17–19). Another large building with storage rooms and a wine press was constructed on several levels. Seal impressions on pithos sherds suggest that the site may have played an important role in the administration of copper production and distribution. Hadjisavvas suggests that the complex functioned as the administrative center of a large settlement, and that Building II was of palatial character.

Kalavasos-Ayios Dhimitrios

At Kalavasos-*Ayios Dhimitrios* in the Vasilikos valley settlement started by LC IIA:1 (Cadogan 1998; South and Todd 1985; South 1996). Extensive buildings were erected in LC IIA:2/IIB, and a very wealthy tomb was built next to one of these. A little later, Building X was constructed on a monumental scale, providing facilities for the production and storage of olive oil. The town was well organized, with a variety of houses of different sizes set on long straight streets, offering clear evidence of town planning and social differentiation. In mid-LC IIC Building X was renovated with an extensive use of ashlar masonry, and industrial and storage areas were expanded.

It featured an impressive pithos hall 19 meters in length in which 50 huge pithoi were standing or sunk into the floor, with a combined capacity of at least 50,000 liters. A large collection of pot sherds, animal bones, and seeds was found in a deep shaft in one of the rooms; of these sherds, 60 percent were imported Mycenaean. The excavator suggests that it was the debris from elite dinner parties (South 1995: 194). Among other important finds in Building X were five small clay cylinders with Cypro-Minoan inscriptions; previously only one such seal had been found in Cyprus, at Enkomi. Although these inscriptions cannot be read, they support the hypothesis that the building served an administrative function.

To the west of Building X, another large building (Building XI) appears to have been used for the production of olive oil. Another building in the complex, Building IX, provided evidence for the small-scale working of copper: crucible fragments, a small hearth, bronze tools, and pieces of scrap, ingot fragments, and small concentrations of slag from secondary melting. Copper slag, fragments of smelting equipment, and fragments of ingots have also been found in small amounts in other areas all across the site, evidence for small-scale, probably private, enterprise (South and Todd 1985: 119; Muhly, Maddin, and Stech 1988; South 1995; South 1997).[20] The site is 8.5 kilometers south of the Kalavassos copper mines, and mining and the working of copper, in addition to the production of olive oil, probably explain its establishment. Building X was burned at the end of the thirteenth century, and the site, by that time probably the central point of the system of copper production in the area, was apparently peacefully abandoned.

Maroni-Vournes *and Maroni*-Tsaroukkas At Maroni-*Vournes* there were two phases of monumental building. The first large building, probably built in the fourteenth century, was the Basin Building, a unique structure the use of which is unknown. This was followed in the thirteenth century by the Ashlar Building and the West building. The Ashlar Building had an olive press and pithoi on stands; evidence of metalworking was found in casting debris, lumps of copper or bronze with iron and charcoal, and knife and bracelet fragments. The building is comparable to Building X at Kalavasos-*Ayios Dhimitrios*; both appear to have been public administration centers involved in the control and distribution of food (Cadogan 1986). That trade was the motivation for the establishment of the complex is suggested by the presence of foreign pottery – Hyksos Tell el-Yahudiyeh Ware, Egyptian el-Lisht Ware, Syro-Palestinian Brown Burnished Ware, Cypriot Bichrome Wheelmade Ware, Canaanite jars, and, in LC II, LH IIB pottery from the Aegean (Cadogan 1986).

The early coastal site of Maroni-*Tsaroukkas* has been known since the mid-nineteenth century AD as a source of Mycenaean pottery, which was excavated from at least 26 Late Bronze Age tombs. As a coastal site, it was probably the port of arrival of the imported items in these burials, but evidence for a settlement was lacking. Manning therefore undertook the "*Tsaroukkas*, Mycenaeans and Trade Project" in 1993 in order to put the material into context (Manning *et al.* 1994b). Numerous tombs were found that yielded more material attesting to overseas contacts, and underwater explorations found more than 45 stone anchors and at least 1 distinctive LC IA assemblage that seems clearly to have come from a boat, whether as a result of a shipwreck, having fallen into the sea accidentally, or having been dumped (Manning, Sewell, and Herscher

2002: 159). Thus *Tsaroukkas* may have been a harbor site, although no harbor installations have yet been found.

These Cypriot settlements of the fourteenth century were established, perhaps on the impetus of Ugarit, as part of a complex system of copper production. They were connected by dendritic chains of settlements to the copper mines in the mountains and their subsidiary support villages, with various sites along the line set up as way stations for the processing and transport of the metal, and for provisioning the workers. Among these newly urbanized settlements were Kition, Alassa, and Kalavasos-Ayios *Dhimitrios*, Maroni *Vournes*, and Maroni *Tsaroukkas*. As active harbors, they "functioned as agents of social change, seed-beds of new ideas from interactions"[21] between diverse maritime populations: sailors, traders, and adventurers.

Was Cyprus a unified state?

The question of the relationship between these various Cypriot settlements remains a contentious one. While some were clearly subordinate to others in the process of mining, working, and distributing copper, was there a single power in control of all these production chains, a capital of Cyprus? Or was the island organized into several small polities?

Enkomi, the earliest Cypriot urban site to be extensively excavated,[22] was the earliest candidate for the role of capital of a united island. Its obvious wealth, extensive trade connections with the Levant, and good fortune in being preserved in an impressive state that could be "read" by archaeologists made it a natural choice as the "capital," as some still maintain (Knapp 1986a; 1988b: 151–2; 1996b: 68; 1997: 66–8; Muhly 1989a: 151–2; 1996; Peltenburg 1996). Others, basing their arguments on the continuing study of the archaeological evidence from the island as a whole, argue that Cyprus was divided into a number of independent states (Merrillees 1987, 1992; Steel 2004: 181–6; Manning and De Mita 1997; Manning 1998). Among these, the suggestion of Keswani that the island was a heterarchy of eight independent centers has attracted the most attention.[23] She argued that the lack of a standard architecture, iconography, site size, and distribution of highest-order valuables make it unlikely that all these sites were dependent upon Enkomi (see Keswani 1993; 1996). Rather, she suggests that the picture is one of local control, in which the political elites in the various centers operated independently of each other, although not in a "free-enterprise" market economy. The model would be Ugarit, where merchants had a great deal of prestige and independence, but were still subject to the king.[24]

A capital, or, perhaps better, center of gravity, that shifted over time is suggested by the development of the copper industry on the island. The earliest exploitation of copper occurred in the north, with settlements in the Troodos mountains that fed coastal ports (Lapithos *Vrysi tou Barba,* Bellapais *Vounous,* Vasilia *Kaphkalla*, and Karmi *Palaelona*). It then shifted to the northeastern foothills of the Troodos Mountains south of Nicosia, and the eastern Mesaoria, with Kalopsidha perhaps the main gateway for export to the Levant. But in the early Late Bronze Age Enkomi replaced Kalopsidha as the most important copper-production site in eastern Cyprus, and, for a time, the most important metallurgical center on the island (Muhly 1989a; Goren *et al.* 2003: 245; on Enkomi, Peltenburg 1996). In the LC II period (fourteenth century), however, many other urban sites that were active in production

and trade – some much larger than Enkomi – were established or urbanized along the southern coast, including Alassa; Kalavasos; the two Maronis; and Hala Sultan Tekke/Kition.

The diplomatic relationships between the lesser and greater powers of the Late Bronze Age, as exemplified by Cyprus, are illuminated by the evidence of the royal correspondence of the period, especially the Amarna Letters, which far outweigh in historical significance the short-lived city built by Akhenaten. The Amarna Letters that involved Cyprus include (Moran 1992):

EA33 The king of Egypt greets a newly installed king of Alashiya and asks for an exchange of gifts.

EA 34 Replying to the king of Alashiya's complaint that the Egyptian king had not sent a messenger for the performance of a sacrifice, the Egyptian king says that he had not known of the sacrifice and with this letter was sending a messenger along with numerous gifts, including oil for the annointment of the new Alashiyan king. Following the usual practice, he also asks for gifts in return.

EA 35 The king of Alashiya sends 500 (talents) of copper to the king of Egypt as a "brother's greeting-gift," apologizing for the small amount – his country has been struck by the hand of Nergal (an epidemic of some sort) and there is a shortage of copper workers. He asks for gifts in return, especially for the very best silver in great quantities, for oil (for annointing), and for an expert in vulture augury. He also asks for payment due him for timber that he has sent to Egypt. He requests the return of the possessions of an Alashiyan man who has died in Egypt. He assures the Egyptian king that he should not to be concerned that his messenger has stayed in Alashiya for three years – a situation he seems to attribute to the epidemic. The letter concludes with another request for gifts, and a reassurance that the king of Egypt has not been put on a level with the king of Hatti (other evidence suggests that the Alashiyans played both sides in the rivalry between the Hittites and the Egyptians).

EA 37 The king of Alashiya sends copper and horses and asks for silver from Egypt.

EA 38 The king of Alashiya denies that his men were involved with the men of Lukki (on the south coast of Anatolia, roughly today's Lycia) in an attack on Egyptian territory, saying that his own villages were in fact attacked and seized by the Lukki "year by year."

EA 39 The king of Alashiya asks to have his messengers returned promptly – they are his merchants – and requests that no one making a claim in the name of the king of Egypt is to approach his merchants or his ship (a claim of exemption from customs dues).

EA 40 The king of Alashiya complains that his gifts [to a third party] of copper, ivory, and a beam for a ship were not reciprocated, and that the Egyptian king sent only some ivory in return. He asks to have his ship and men sent back – they are his servants and no one making a claim in the name of the king of Egypt is to approach them.

Royal correspondence found in Ugarit adds significantly to this evidence. One of these letters, sent by a Cypriote merchant to the king of Ugarit, sought permission to purchase ships in Ugarit.[25] But most significant is a letter found in 1994 and sent by a man of Alashiya, Kušmešuša, who wrote to "my brother," the king of Ugarit, Niqmaddu III (ca. 1225–1215 BC) about a shipment of 33 ingots of copper that he

was sending (Yon 1999, 118; Malbran-Labat: 1999, 122). Given the use of the term "brother," Kušmešuša must have had the status of king.

But who was this Cypriot "king"? And where was his capital? While the letter supports the existence of a king, it does not identify the city in which he ruled. An analysis of the clay of the Amarna letters that had been sent from Cyprus has provided some clues to this vexing question, although no real solution. It has identified that the region from which they came was indeed Cyprus (and not Cilicia or some Syrian site). Unfortunately, however, it has not provided a clear identification of the Cypriot center from which letters were sent, since a number of settlements in the south or west used clay of the same type, including Kalavassos, Palaepaphos, and Alassa. Significantly, however, the tablets could not have been made at Enkomi, since its clay resources were completely different (Goren *et al.* 2003).

Shipwrecks as evidence for exchange

Other vital evidence for this maritime exchange in the Late Bronze Age comes from three shipwrecks, the earliest of which sank off the southern coast of Turkey at Uluburun at the beginning of the thirteenth century.[26] The ship was a 15–16 meter vessel and carried at least 354 copper oxhide ingots and about 120 bun-shaped copper ingots, all probably of Cypriot origin;[27] about a ton of tin ingots, whose origin is still uncertain (Heltzer 1989); and approximately 175 glass ingots, probably from the Syro-Palestinian coast. The pottery included 149 Canaanite jars, including 10 giant storage pithoi, 3 of which contained Cypriot lamps, juglets, and nested bowls. Seven other pithoi contained pomegranates and possibly olive oil; some had evidence of a substance identified as terebinth resin, identical to resin from Amarna in Egypt (Pulak 1997, 240–1); perhaps it was used as a preservative for wine, which was often transported in such containers (Pulak 1998: 201). The smaller pottery on board included approximately 135 items of Cypriot ware, an amount "twice the number of Cypriot pottery vessels presently known from all phases of the Late Bronze Age over the entire Aegean region" (Pulak 1998: 204). Food on the ship, as cargo or for onboard use, included almonds, pine nuts, figs, olives, pomegranates, and various spices. The ship carried 24 stone anchors of a type well known at Ugarit, Byblos, and Cypriot Kition, and found also on the later Cape Gelidonya shipwreck. The ship also carried luxury items – logs of Egyptian ebony, ostrich egg shells, three faience drinking cups with ram-shaped heads and one in the shape of a woman's head (p. 204); elephant tusks, hippopotamus teeth, tortoise shells, usable and scrap gold and silver Canaanite jewelry, and thousands of beads, including some of amber. Several items seem likely to have been guest gifts to be used in diplomatic trade, such as a gold chalice, faience drinking cups; and two pairs of glass pendant or relief beads (Pulak 1997: 244, 256). Personal items probably belonging to the crew included the scarab of queen Nefertiti (a good-luck amulet?) (Pulak 1998: 206; Bass *et al.* 1989: 29), bronze tools, spearheads, arrowheads, daggers, swords, and stone mace heads along with fishing gear. Two hinged wooden writing tablets (Payton 1991) and a large collection of pan-balance weights in animal and geometric shapes was of such weight and type that the excavators suggested that they "may be taken as near-conclusive evidence that Canaanite merchants were on the ship" (Pulak 2000: 256–7).

Other personal items point to the presence on board of at least two Mycenaeans, probably of high rank: two Aegean swords and Mycenaean glass pendant beads from at least two separate pectorals, and utilitarian Mycenaean pottery – a cup, dipper, flask, and pitcher (Pulak 1998: 218). Since the set of weights was Canaanite, the Mycenaeans were probably not merchants; possibly they were emissaries accompanying a royal shipment, or messengers (Pulak 2005: 308–9).

The size and nature of the cargo suggested to the excavators that most of these items were part of an official shipment intended for a specific destination, rather than the diverse collection of items that one would expect on a tramping ship (Pulak 1997: 256; Cline 1994: 100–1). On the other hand, Bachhuber (2006: 355, n. 128, citing N. Hirschfeld, pers. comm. 2004) noted various items in the cargo that seem unlikely to have been destined for elite gift exchange, such as the large pithoi filled with "cheaply made" Cypriot pots. This is in line with recent suggestions that both private and official palatial enterprise operated in the maritime system (Wiener 1987: 164; citing Artzy 1997; Manning and Hulin 2005), and it seems likely that the ship's captain, while he may have carried an official shipment, also carried a random selection of other trade items and planned to call at a number of ports.

As far as the "nationality" of the ship is concerned, the mixture of materials found in the remains of the Uluburun wreck make this unclear. It has been established that the copper was Cypriot, and much of the pottery as well, while the large amount of Canaanite jewelry, and the collection of weights signal the presence on board of Canaanite merchants, probably from the port of Ugarit (Pulak 1997: 252; 1998: 214–20). With its major cargo of copper taken on board in Cyprus, and heading west, it is unclear for which great king the cargo might have been intended, if the ship did have a specific destination. Egypt seems the most likely possibility, although it would seem that a more direct route would have been chosen to reduce the risk to the valuable cargo. Most immediately, the ship seems to have been headed for Rhodes; from there it could have visited Aegean ports, or gone on to Kommos in Crete, and possibly even sailed to Sardinia. The plan may then have been to sail back to the Levantine coast, or take the southward route after a call in Kommos, stopping at Marsa Matruh on the north coast of Africa and sailing from there along the coast to Egypt, and then back to the Levantine coast for another circuit. But the ship foundered and sank after leaving Cyprus.

About a century later, two more shipwrecks possibly suggest deteriorating economic conditions, especially in the Aegean. The second ship foundered along the same coastline as the Uluburun ship had, at Cape Gelidonya (Bass 1961; 1967; 1973; 1991).[28] Excavated in 1960, it was small in contrast to the Uluburun ship – somewhat over 10 meters in comparison to the 15–16 meters of the earlier ship (Pulak 1997: 249). It also carried a more mundane cargo: 34 oxhide and bun-shaped ingots of Cypriot copper, tin ingots, and about a ton of scrap bronze, mostly of Cypriot origin, as well as metalworking tools and a large stone that could have served as an anvil (Bass 1967: 84–110; Catling 1964: 99, 292). The tools and potential anvil suggest that one passenger may have been a tinker, serving the needs of small communities where the ship docked, or he may have been a metalworker en route to Sardinia, where bronze weapon types as early as the mid-third millennium show similarities with Cypriot finds, and oxhide ingots with Cypro-Minoan marks have been found at least as early as the

mid-fifteenth century (Giardino 1992: 304–7; Lo Schiavo 1990: 20–1, 36–7). Another passenger may have been a petty trader, for a variety of weights were found, which would have allowed their owner to carry on trade at any of the stops along the route. An eighteenth-century Syrian cylinder seal was found in the cabin area, as were five scarabs. They were probably carried as talismans and offer no information about the origin of their owners. The wreck contained relatively little pottery and it was of mixed origins – Cypriot, Levantine, Mycenaean – typical of what might have been found in any port along the sea routes, probably picked up as the ship moved from port to port.

There is no agreement about the "nationality" of the Cape Gelidonya ship, with its mixed cargo; but the Syrian or Canaanite character of the personal possessions (weights, scarabs, and cylinder seal), as well as the discovery in 1994 of the ship's Syro-Canaanite or Cypriot stone anchor, caused Bass to lean to a Canaanite identity for the ship (1997: 168 and n. 223; so too, Stos-Gale and Gale 1992). It seems to have been on a tramping voyage, possibly in contrast to the Uluburun ship, if indeed that ship carried a cargo intended as a gift for a great king.

The third shipwreck, at Point Iria in Greece, at the south entrance of the Gulf of Argos (Vichos and Lolos 1997; Vichos 1999; Lolos 2003), provides evidence for the use of Greek ports on the east–west Mediterranean route at the end of the thirteenth century, at approximately the same date as the Gelidonya ship. When excavation took place from 1990–4, only remains from the cargo were found; the ship itself did not survive. The cargo consisted of Cypriot and Mycenaean pottery, mostly transport vessels. Three large pithoi were of Cypriot origin, dated LC IIC–LC IIIA;[29] smaller pieces of Cypriot pottery included a bowl and basin, and a juglet. Mycenaean transport vessels included a group of eight coarse-ware stirrup-jars that date the wreck to the later thirteenth century, "probably towards, if not exactly at, its end" (Vichos and Lolos 1997: 326). Other Mycenaean ware included cooking pots and a few pieces of decorated ware. If there were any objects of intrinsic value on board they had disappeared by the time the wreck was discovered. The ship sank quite close to shore, and it is possible that some of the crew survived to retrieve prized items. The excavator now believes that the ship was probably Cypriot because of the presence of large Cypriot pithoi serving as permanent containers, three Cypriot jugs among the utility ware, and Cypriot potter's marks on the handles of a Mycenaean amphora that match marks on Cypriot copper ingots from the Uluburun wreck (Lolos 2003). There were no Syro-Palestinian pots, which probably rules out Ugarit or another Levantine home port. The basic mixture of the utilitarian pottery is similar to that found on the other two wrecks. The starting point of the voyage seems certainly to have been Cyprus. It may have made a stop at Crete, where cargo would have been off-loaded and taken on (Lolos 2003; Vichos and Lolos 1997: 328–30),[30] then headed toward an Aegean port, which it never reached. Or possibly it was headed for Sardinia. The most important aspect of the Point Iria wreck lies in the fact that it demonstrates the existence of sea traffic between Cyprus and the Aegean at this troubled time.

Of these wrecks, the earliest was arguably carrying an "official" cargo sent by the ruler of some state, although it seems likely that other cargo was carried as well; however, the later ships had clearly carried mixed cargoes, some possibly items of sailors' trade carried by the ships' crews, most picked up at ports along the way. The mixed character of the cargoes of the three ships makes it difficult to determine their "nationality." In fact, the

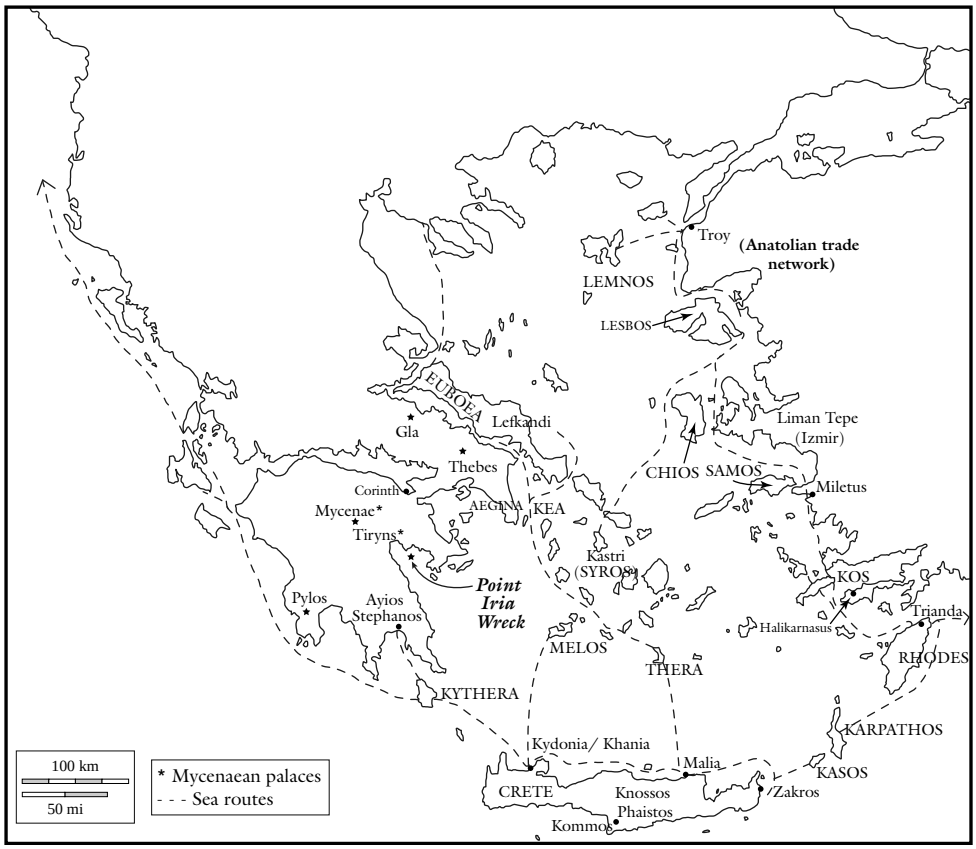
very concept of nationality may be inapplicable to Mediterranean sea traffic in the Late Bronze Age, as ships moved constantly from one port to another, loading and unloading goods at each stop, manned by crews taken on as need arose.[31] Artzy (1997) has argued that a special population of maritime venturers must have been created by this traffic, sufficiently multilingual to work with fellow crewmen speaking various languages and to carry on trade in the various ports – the "Nomads of the Sea."

The three shipwrecks illustrate the multiple maritime networks operating on various levels in the Late Bronze Age Mediterranean. At the elite level, large ships capable of carrying cargoes for exchange between the Great Powers reached as much as 20 tons (Pulak 1998: 210–13). Cargos in a single one of these large ships might, like the Uluburun wreck, have combined the luxury items of royal gift exchange/tribute with the raw materials of industry, and the small trinkets of "sailors' trade."[32] Messengers/diplomats probably accompanied the gift shipments, and the two Mycenaeans aboard the Uluburun ship may represent this level of exchange, On another level, smaller boats carrying mixed cargoes, perhaps belonging to several individual traders, moved from port to port, trading and picking up new items as opportunity offered, in tramping voyages. Passengers included traveling craftsmen who would attract work while the ship was moored. Finally, at the most local level, not represented in the shipwrecks, farmers took to their own small boats to market surplus crops, as Hesiod advised in a later period (Hesiod *Works and Days* 618–95), and local fishermen sold their catch.

The Rise of the Mycenaeans

The mainland of Greece during the Minoan Neopalatial period lacked the palatial buildings and elaborate complexes of the Minoans, although the inhabitants were beginning to build large buildings of unknown use that transcended private homes in size and complexity – the Corridor buildings, the best known of which is the House of Tiles at Lerna (see Chapter 5). There was contact with Minoans, probably by way of Kythera, from at least the early third millennium (see Chapter 5).[33] This contact (and possible piratical encounters at sea) is reflected in the well-known Shaft Graves at Mycenae, dated to ca. 1600–1500, in which a rich collection of artifacts was found, including decorated weapons – the famous inlaid Lion Hunt Dagger – gold and silver vessels; gold face masks and breast plates; rock crystals and amethyst seals; and many items of gold and silver jewelry. The richest finds ever made in the Aegean area, the contrast with the surrounding culture is striking. That these were the fruit of peaceful trading seems unlikely, but a discussion of the full range of likely – and less likely – explanations can be found in Jeremy Rutter's Dartmouth web site.[34]

Contact between the mainland and Crete is also attested in less spectacular ways by Minoan access to copper at Lavrion and in Minoan influence in the development of Helladic pottery, which in the course of LH I and LH IIA (ca. 1675/1650–1490/1470 BC) evolved into the earliest Mycenaean style (Mycenaean *koine*), which borrowed both shapes and patterns from Minoan potters who were resident at mainland coastal sites such as Ayios Stephanos (see Chapter 5) (Taylour and Janko 2008).[35] Two types of pottery widely used in the southern Peloponnesus, Lustrous Decorated Ware and Micaceous Ware,[36] were produced in Kythera and in Ayios Stephanos (Zerner 1993).



Map 7.3 Mycenaean palaces and Aegean maritime routes.

In addition to their influence on the local pottery, the Minoans resident at Ayios Stephanos also left a very distinctive sign of their presence in a Linear A inscription, rare on the mainland. It consisted of two symbols carved on a piece of stone, a "double-axe" and a "cat's head." Not being made of clay, it is unlikely to have been used in an administrative system but was probably a token of some sort. The settlement also showed signs of Minoan influence in its general layout and the use of rectangular rather than apsidal houses, but more specific architectural signs of Minoan presence were lacking – there were no painted floors or walls, ashlar construction, pier-and-door partitions, pillar crypts, light wells, flushing lavatories (although the town did have Minoan-style drain-tiles), or horns of consecration.

The presence of Minoans on the Greek mainland was probably motivated by their desire, as accomplished metallurgists, to acquire metals, since Crete had neither copper nor tin. Copper was present in the Aegean, but Minoan access to tin was dependent upon a long trading chain to some source in the interior of the Levant, probably Afghanistan,[37] and was subject to interference by changing political conditions along the route. Similarly, the tolerance of the Mycenaeans for the presence of the Minoans on the mainland probably derived at least in part from Minoan metallurgical skills, which would have appealed to a culture in which weapons played a major role, not only for

practical purposes but also for display and status, as attested by the many Mycenaean "warrior burials."

Thus, establishing a more direct and independent source of metals, especially of tin, must have been an important goal for both Minoans and Mycenaeans, with both ultimately looking west, where small deposits of tin are attested in Sardinia and in Tuscany. In fact, already in the seventeenth century BC, people from the Aegean had tentatively explored the area, making small settlements on the route west, at first landfall on the east coast of Apulia, on the Aeolian Islands, and on Vivara in the Bay of Naples (Ridgway 1992a: 5–6; Giardino, Merkouri, and Pepe 2008; Marazzi, Carpano, and Giardino 1998; see Chapter 6), key distribution points and emporia for the resources of the west (see Chapter 6). In the second half of the millennium people from mainland Greece settled in a few sites on the Italian and Sicilian coasts, but they do not seem to have had much influence on the local culture, nor do they seem to have been successful in accessing tin, since, unlike the Cypriots, they did they venture as far as Sardinia.

Final Palatial Crete

In LH IB, the situation on the island changed dramatically when most of the New Palaces were destroyed by cataclysms of unknown cause (Merousis 2002). Knossos was an exception in that, while it suffered severe damage, it continued to be occupied and used. The situation is unclear, but it seems likely that in the chaos caused by palatial destructions on Crete, some Mycenaean "chiefs" seized the opportunity to move in and take over, as suggested by the presence of Mycenaean-style warrior graves. As time went on, elements appeared in the pottery that have been taken as indicating Mycenaean presence, such as the adoption of the more stylized and rigid vase-painting styles.[38]

The Mycenaeans at Knossos exercised sole control over that site and some unknown associated territory for some 50–60 years (LM II–IIIA1). Adapting Minoan Linear A script to serve Greek (Linear B), they became adept at administration and organization. As the rest of the island gradually recovered and grew in population, other indigenous centers gained some control over their own economic life, although the production of wool and textiles remained under Knossian control. Regional variations in pottery in east Crete also add to the evidence that the island was split into a number of independent kingdoms (Day, Mook, and Muhly 2004: 26–34).

At the beginning of LM IIIA2, the palace at Knossos was destroyed by fire, and local centers subsequently took the leading roles in their regions, many as independent polities. At Agia Triada a number of large buildings, one possibly a palace, another a large-scale storage facility, were constructed at this time. The nearby port of Kommos, the main Minoan port on the southern coast of the island, was enhanced by a monumental harbor complex that included a large open court, a stoa, and ship sheds built of ashlar blocks reused from the Neoplatial building (Watrous, Day, and Jones 1998; Shaw and Shaw 1990; 1995; 1996; Maria Shaw 1985; Watrous 1985). Numerous fragments of vases from Egypt, the Levant, Cyprus, Sardinia, and Italy attest to its activity as a port on the route west (Watrous 1985; 1992: 178–83; Watrous, Day, and Jones 1998). Late in the fourteenth century BC there was a fall off in ceramics from the east, probably because of unstable conditions there, and imports from Italy and Sardinia increased. Many of the large ceramic jars from the west that were found in

large numbers at Kommos probably carried bronze scrap, for the melting of bronze was one of the more conspicuous industries at Kommos in LM III A2–B (Watrous 1989).

At the port of Khania (Minoan Kydonia) excavation has revealed well-built houses arranged in blocks, with small streets and squares. One house, now completely excavated, had a Minoan Hall; a staircase; numerous living and working rooms, and a treasury containing more than 300 decorated vessels, stone vases, amulets, seals and jewelry. In another house, frescoes decorated an upper room. Linear A tablets attest to administrative activity and the site's probable existence as a separate, Minoan polity.

Kydonia was destroyed in a fiery disaster that brought LM IIB to an end and heralded the arrival of the Mycenaeans, as attested by the finding of Linear B texts there. Kydonia is one of only three Cretan sites at which such tablets have been found, the others being Knossos and Malia. One of the tablets refers to the names of two Mycenaean gods, Zeus and Dionysus, and to a sanctuary dedicated to Zeus, probably in the vicinity. Another tablet mentions weavers identified by the names of towns attributed to western Crete. A third tablet provides information about ten chariot wheels, which can be related to a tablet at Knossos that mentions the supply of chariots from Kydonia (Andreadaki-Vlasaki 2003) The tablets attest administrative activity and the palace's probable existence as a separate polity (Hallager and Vlasaki 1997).

Mycenaean Kydonia was a strong and rich city, with a commercial network that extended to Canaan in the east and Sardinia in the west. A Cypriot vase was found on Kastelli Hill, as well as a scarab with the name of Amenhotep II. Locally produced inscribed stirrup jars from Kydonia have been found at many other sites in Crete and on the Greek mainland, and Kydonian vases have been recognized in most of the major overseas centers of the period, including Cyprus and Sardinia. The excavators suggest that Kydonia's position as the most important center in northwest Crete induced the Mycenaean leaders to use this site for the control of the rest of Crete (Andreadaki-Vlasaki 2003: 55).

The Mycenaean palaces

Experience with existing Minoan palaces, and perhaps notably with the palace at Kydonia, motivated the Mycenaeans to develop their own palaces on the mainland. Although inspired by Minoan examples, these were based on traditional Helladic forms and driven by their own perceived needs (see, most recently, Galaty and Parkinson 2007). The end product was thus quite different from the Minoan palaces. The Mycenaean palace was focused on security. It was built around the traditional Helladic form of the megaron, a rectangular room with an entry and porch on the short side and a large central hearth. Lacking the large, open central courtyard of the Minoan palace, in which large crowds gathered, it was essentially the private domain of the ruler and nobility. Defensive outer walls built with huge Cyclopean blocks, some as large as 4 by 6 meters, protected the stronghold, and by the end of the effective life of the palaces, the Mycenaeans had enhanced these walls by the addition of cleverly designed defensive postern gates and complex provision for safe access to protected underground water supplies.

The Mycenaean palace lacked the various suites of living rooms, monumental staircases, light wells, and pillar-and-door construction so characteristic of Minoan

palaces. They did possess baths and a system of drainage for rainwater, but no evidence has been found for the sort of flushable toilet facilities that existed in Minoan complexes. Obviously, comfort, light, and air were not the primary considerations of Mycenaean rulers. But the palaces did have some utilitarian features in common with the Minoan palace: provision for large-scale storage of commodities, work rooms for the manufacture of various products, record keeping on clay tablets, and archive rooms for the storage of these records as well as ceremonial areas elaborately decorated with wall frescoes that often copied Minoan motifs, though in a style that is regimented and formal.

The Linear B tablets

The Mycenaeans also adopted the Minoan linear writing system, Linear A, which still cannot be read, to produce Linear B, an early form of Greek (Chadwick 1958; 1987; Palaima 1988). The development of Linear B appears to have taken some time, however. Although Evans claimed to have found Linear B texts at Knossos in a level dated at between ca.1425–1385 BC, it is otherwise first known from the destruction level of the Mycenaean palace at Pylos, dated to ca. 1250 BC. Since it seems unlikely to experts that a script would continue unchanged for such a long period of time, Evans' dating has come into question.[39] A later date is supported by the discovery of a pair of tablets at Khania in a LM IIIB1 (thirteenth-century) destruction context, one written by a scribal hand "astonishingly" like one known at Knossos, written by the same scribe or at least in the same scribal tradition (Hallager and Vlasaki 1997). The fact that all the inscribed stirrup jars in well-dated contexts, including one from Knossos, date to the thirteenth century also supports the conclusion that Linear B was a thirteenth-century phenomenon.[40]

The recognition that the Linear B tablets were written in a form of Greek and thus could be read strongly shaped the perception of Mycenaean culture for scholars. The skill, and at times ingenuity, required to decode the information that they contained focused the attention of scholars for a generation on the intricacies of the accounting system of the tablets and led to the view that the Mycenaean political/economic organization was very like that of the Near Eastern palaces as they were then understood – a tightly organized system in which a powerful ruler controlled all aspects of the lives of a subservient and dependent peasant population, administering an economy of collection and redistribution, with external trade mainly in the form of "royal" guest gifts.[41]

Recently, however, this view of the Near Eastern kingdoms themselves has been revised as scholars have increasingly questioned the appropriateness of a single model to describe the various bureaucratic and record-keeping polities of the Near East (Postgate 2001). In the light of growing evidence from the smaller Levantine kingdoms such as Ebla, Mari, Ugarit, and Alalakh (Yon 1992; Heltzer 1978; 1982), many scholars now posit the existence and interaction of both palace-controlled and private, independent sectors in the economy (see Heltzer 1984; 1988; Liverani 1984). With this new understanding of the Near Eastern kingdoms, the model of total palatial control for the Aegean Bronze Age has also been brought into question. A fuller consideration of the Linear B tablets, seen in the context of recent archaeological evidence, also suggests that

the control exercised by the palaces was far less extensive than was earlier thought.[42] Halstead was an early and strong advocate of this shift in thinking (1992a; 1992b; 1988), and recent research on the tablets and the archaeological evidence has significantly strengthened the case for less than total palatial control (see especially Voutsaki and Killen 2001 and Galaty and Parkinson 2007). This is an important question not only for understanding the palaces themselves but also for assessing the situation after the Late Bronze Age destruction of the palaces, which ultimately led to the creation of the Greek polis. Thus, it will be considered here in some detail.

The very existence of the Linear B records led in early analysis to an exaggeration of the importance of the palace in the economy. The detailed records of wool-producing sheep (Killen 1964; 1984; Halstead 1981; 1992b; 2001), textile production (Killen 1984), the production of perfumed oils (Shelmerdine 1984; 1985), inventories of spare chariot parts, land allotments, and religious personnel and offerings (Palaima 1995, esp.131–4) are indeed formidable, and in these cases, a picture of work and allocations as specialized and directly controlled by the palace seems justified. Closer study has shown, however, that there are important gaps in the tablets. Only certain goods and activities interested the palace, and the tablets do not give the whole picture of the Mycenaean economy. A number of items known from archaeological finds to have been important in the Mycenaean economy are absent in the tablets. These include exotic and basic raw materials – copper and tin for the production of bronze, and ivory, used by palace craftsmen (Halstead 1992a: 62) – as well as some important agricultural products such as pulses (Halstead 1981; 1992a: 60, 64; Ventris and Chadwick 1973: 131; Dickinson 1994, 83–4; Sarpaki 1992), and wheat (Halstead 1992b; 1999, 38; 2001).

Perhaps the most obvious gap in the tablets, from the standpoint of trade, is the lack of any mention of exports. While imported items have also been found on Mycenaean sites, LH IIIA1–IIIB1 Mycenaean pottery has been found throughout the Mediterranean, and evidence supports the operation of Mycenaean industries that must have required both export of products and import of labor – the perfume industry of Pylos and large-scale production of textiles at Knossos – there are no mentions of merchants or records of overseas trade (Manning and Hulin 2005: 284). Few pots appear on the tablets in any guise, and none that suggest direct involvement in their export or import. The few ceramic vessels that do appear on the tablets are registered for the most part only as containers for their contents[43] or occur in scattered and ephemeral notations (Whitelaw 2001, 73). Even the ideograms used to identify vessel types are now thought to refer to metal rather than pottery vessels (see Ventris and Chadwick 1973: 324 and fig. 16). In fact, the entry, "ti-ri-po-de," portraying a three-footed vase, that Michael Ventris dramatically translated as "tripod," thus convincing most of the academic world that the language of the tablets was indeed Greek, is now recognized to have referred not to a ceramic pot but to a metal vessel.[44]

Potters themselves also appear rarely on the tablets: only four potters are recorded on the Pylos tablets, one of whom is designated "of the Wanax" (king) (see Palaima 1997),[45] and at Knossos only one (possibly) female potter is noted. It may be, as Knappett (2001) speculates, that only one "official" potter was charged with making all the pottery used in the palace, in order to ensure a steady supply. Although Whitelaw estimated that only one to two potters working exclusively for the palace full time would

have been needed to maintain the palatial supply of pottery, he also notes that full-time work – 8 hours a day, 300 days a year – was unlikely, given the constraints of weather on pottery production. More importantly, the pottery found in the palace has been shown to have been produced by various hands and from various clay sources, countering the idea that only one official made pottery for any given palace (Whitelaw 2001: 68).

The Linear B tablets also lack references to overseas trade – although Wachsmann has plausibly suggested that they were temporary records, or that Mycenaeans may have kept trade records in archives that have not yet been discovered. Another possible explanation for the missing trade records might be that trading ships were owned not by the palace but by entrepreneurial individuals, who would not have kept records of transactions in the official archives (Wachsmann 1998: 123–8). And, in fact, the export of pottery seems to have been carried out independently of the palaces (Galaty 1999a, 1999b). But its distribution patterns, in which it almost always appears together with Cypriot pottery and is often found with Cypro-Minoan pot marks, suggest that it was Cypriots, not Mycenaeans, who were the principal carriers.[46] This in fact fits in well with recent interpretations of the role of palatial administration that see it as focused on the production of high-value prestige items and implanted upon a well-developed pre-existing local economy that supplied the humbler functions of metalworking, the obsidian and chipped stone industry, mixed farming, small-scale herding, and the production of pottery and utilitarian textiles. The discovery of the probable remains of a pottery kiln in the Lower City at Pylos, an area of small domestic buildings dating to before the area was enclosed within the walls, fits this picture (Lindgren (1973, s.v. "ke-ra-me-u": 77–8); Halstead (1992a: 64).[47]

Like the tablets, the shipwrecks do not reflect a picture of Mycenaean involvement in overseas exchange. In the Uluburun wreck, two Mycenaeans appear to have been aboard as passengers and/or traders, but the ship provides no evidence that it was Mycenaean-owned or operated. The involvement of Mycenaean ships in trade has also been argued on the basis of a passage of the Hittite Shaushgamuwa treaty (Bryce 2005: 301–2),[48] in which an incomplete word has been restored as "Ahhiyawa" and interpreted as forbidding Ahhiyawa access to the harbors of Amurru.[49] It has thus been seen as providing evidence that the Ahhiyawans made commercial voyages to seaports of the eastern Mediterranean, and perhaps even reached inland Assyria (Bryce 1989b: 305; Cline 1991b: 6; Watrous 1992: 178; 183). However, Steiner has shown that the restoration is incorrect and that the word in fact was not "Ahhiyawans" but "warships," thus at one stroke removing the "evidence" for the activity of Mycenaean merchant ships in the northern Levant and Assyria (Steiner 1989; Knapp and Cherry 1994: 130).

As a result of increased understanding of the Linear B records, the interpretation (modeling) of the Mycenaean economy has changed significantly. Since it has been established that the greater part of the Mycenaean population was not supplied with staples by the palace, the palatial economy cannot now be described as primarily redistributive. More recent interpretations of the evidence suggest two alternative models. Halstead envisioned a complex system in which central direction co-existed with a non-palatial sector, with exchange filling the gaps in the picture, and redistribution being used for the general population in times of need. In this model, redistribution in the form of mobilization coexisted with reciprocity and exchange (but not true market exchange) (Halstead 1992a: 74; 1999: 38).[50] Parkinson adopted a

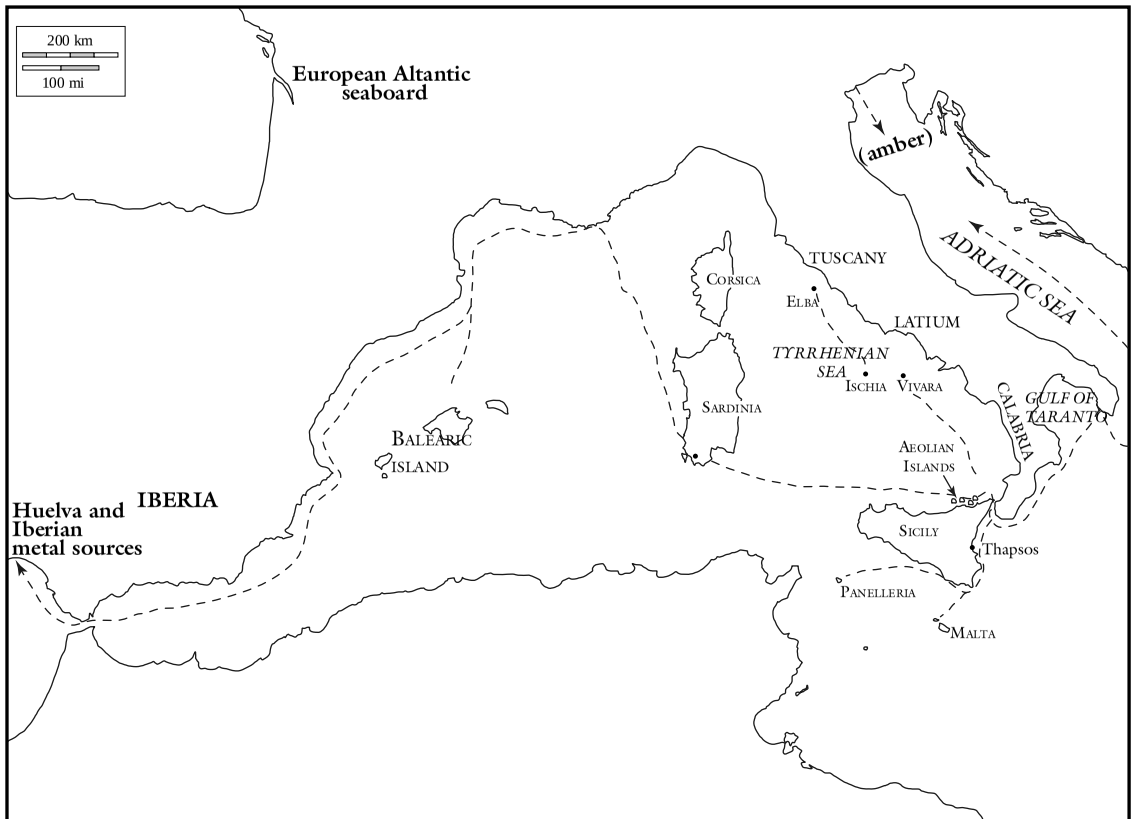
more "minimalist" view of redistribution, pointing to a lack of evidence that staples were collected and redistributed to the general population of Pylos even in times of need. He thus classified the system as one of wealth finance rather than redistribution (staple finance) (Parkinson 1999, 82–3; citing Holly J. Morris 1986, University of Minnesota dissertation). People outside the palatial system lived "on the local economy," producing their own food, trading with each other, and probably paying "taxes," in kind or in labor, to the palace.

These newer models, incorporating the evidence that vital sectors of the Mycenaean economy lay outside palatial control, allow for a revised picture of both the possible "fatal flaws" that may have brought that economy to collapse at the end of the second millennium and of the consequences of that collapse for later development in Greece (see Chapter 8).

Mycenaean ships and maritime activities

Despite the lack of evidence for Mycenaean participation in trade, there is no question that they had ships and used them,[51] and even made overseas settlements. In studying the development of Mycenaean shipbuilding, Wachsmann concluded that they increasingly built vessels that were particularly attuned to raiding – proto-warships. These ships were not intended for use in trade but primarily for fighting and raiding (Schofield and Parkinson 1994), activities that, like trade, yielded luxury items, but that also brought in large numbers of captives: men who could be used for the heavy labor of building of the Cyclopaean fortifications and palaces, and women and children who could work in the production of fine textiles, painted ceramics, and perfumed oils. A good example of this was the first portrayal of a Greek warship on the pithos found in strongly fortified Aegina as well as the treasure that was accumulated by the Aeginetans, probably through piracy (see Chapter 6). The use of Mycenaean ships in mercenary service is also suggested by the portrayal of boar's-tooth helmets on figures in a battle scene on a papyrus found at Tell el-Amarna. Although Russell (1999: 121) suggests, on the basis of this portrayal and the great amount of Mycenaean pottery found at Amarna (Schofield and Parkinson 1994: 157), that a group of Mycenaeans may even have been living there. Bryce maintains that there is no evidence that Mycenaeans ever even visited Egypt, and that trade was very largely in the hands of others (2006: 98–103).

In fact, Mycenaeans were living abroad, if not in Egypt then at a number of sites on the Aegean coast in settlements that in many cases followed Minoan occupation, and they left behind a considerable amount of Mycenaean household pottery. A notable example is Miletus/Millawanda (Niemeier 1999), where a Minoan site was subsequently occupied by people who built Mycenaean-type houses, used Mycenaean domestic pottery, buried their dead in chamber tombs with Mycenaean-style grave offerings, and made and exported Mycenaean pottery to sites on the southwestern Anatolian coast. Müsgebi, on the Halikarnassus peninsula, is another example, with typically Mycenaean chamber tombs and grave offerings. Iasos is still a third possibility, although it was less thoroughly "Mycenaeanized." Many other sites along the coast and on nearby islands also attest to Mycenaean influence, although not to the extent that they can be called Mycenaean (Mee 1998; Niemeier 1997; 1998: 205; Niemeier and Niemeier 1999: 149; 1997: 196–248; Bryce 1989a).[52] Mycenaean settlement in



Map 7.4 Western Mediterranean sea routes in the Late Bronze Age.

Anatolia (and elsewhere) has been called "colonization," but Bryce, calling attention to the Mycenaeans lack of interest in inland areas and trade in general, has suggested that their main motive was not to establish colonies but to obtain resources – metals, horses, slaves – that were perhaps gained more often by seizure or threat than by trade (Niemeier 1999: 149; Bryce 1989a: 13; 1989b: 307; Mee 1998).

Looking at the Mycenaean presence in Anatolia from the viewpoint of the archaeological remains provides a picture of the spread of Mycenaean culture as it is evidenced by pottery, house forms, burial types and burial offerings. Looking at the view presented by the Hittite texts, however, produces a somewhat different picture, and one much more in line with their seafaring activities. As the Mycenaeans/Ahhiyawans followed the Minoans in Anatolia,[53] they soon became involved in power struggles with the Hittites, for whom these areas were sensitive border territories (Niemeier 1999). The earliest evidence for Ahhiyawan maritime activities – aside from the establishment of settlements in the Aegean and Anatolian coast – comes from a Hittite document of the fifteenth century, called the Indictment of Madduwatta, in which the Hittite king complained that a subject of Ahhiyawa had established a base in western Anatolia and made a raid on Alashiya/Cyprus, which the Hittites claimed as their territory (Bryce 2005: 129–37). While it may have been only a small and unsuccessful raid, it nevertheless attests the early employment of overseas bases aggressively by the Ahhiyawans. For some 200 years the Mycenaeans on the coast in effect continually taunted and intrigued with the Hittite vassals in the region, sometimes seducing them to change sides; at one point they even gained control of the city of Millawanda (Miletus). Finally, however, in the last quarter of the thirteenth century the Hittite king Tudhaliya IV regained control of that city. The conclusion of the long-running contest with a Hittite victory was recorded on the Hittite Shaushgamuwa treaty, in which the name of the king of Ahhiyawa was summarily erased from the list of Great King signatories.[54] After this, Ahhiyawa never again figured in the Hittite texts as a member of the club of the Great Kings.

Venturing into the West

During the Mycenaean palatial period (LH IIIA1), small groups of Mycenaeans settled in southern Italy on the Ionian and Adriatic coasts, in the Gulf of Tarento, and on the southern coast of Calabria, and in Sicily (among people of the Thapsos culture). Only in Sicily did they move far beyond the coast, however, and, in the long run, culturally they had little effect on the local populations, aside from introducing painted pottery, collective rock-cut chamber tombs somewhat similar to Mycenaean tombs, and some new weapon types (Bietti Sestieri (1988).[55] They were unable to establish themselves in the main metal-producing areas of the central Tyrrhenian region (ancient Etruria), where local people had long been settled and exploiting the metal resources (Giardino 2000b).[56] Nor did they establish themselves in Sardinia, although Mycenaean pottery made the trip (Lo Schiavo 2003b: 15–16). Perhaps it was a voyage too far for the Mycenaeans, but Ugaritic or Cypriot ships reached it by the thirteenth century.

Rather than the Mycenaeans, it was people from Ugarit and/or Cyprus who became the major players in Levantine trade with the west (Linder 1981: 37), linking eastern

and western trade networks. Oddly enough, these easterners in their dealings with the Sardinians seem to have acted mostly as suppliers of Cypriot copper. Despite the fact that the Sardinians possessed good copper resources and tin in small amounts (Begemann *et al.* 2001; Lo Schiavo 2003b), for unknown reasons, they were attracted by the oxhide ingots brought from Cyprus. These have been found at 26 sites, not only on the coasts, but also inland (Lo Schiavo 1998; 2003b), along with finds of smithing tools, tripod stands, and Cypriot pottery (Stos-Gale and Gale 1992: 322–3). Muhly has doubted this trade on the basis of a "coals to Newcastle" argument (Muhly 1991), since Sardinia did have its own copper resources; however, many factors may have made this a rational trade from the perspective of the Sardinians – desire to preserve their own copper sources, which were relatively small; a perceived higher quality of Cypriot copper; possibly even the handy, "ready-made" form of the oxhide ingots (Stos-Gale and Gale 1992: 322–3, 335). Possibly the copper was traded for Sardinian tin, or perhaps for tin transshipped from Tuscany (a fairly closed area where Cypriots might not have been welcomed), or even from Iberia, Brittany or Cornwall, which all possessed tin resources. Other Sardinian products that might have attracted traders were alum and iron, at that time a luxury material (recall the finger-ring made with an iron wire in a thirteenth century burial in Kition) (Karageorghis 1976a: 32–53; Vagnetti and Lo Schiavo 1989: 227–31; Stos-Gale and Gale 1992: 336).

Sardinia was not the end of the line in east–west connections, however; a large number of Iberian weapons, ornaments and tools have also been found on the island (Lo Schiavo 2003b). The most revealing is perhaps a fragment of an articulated *obelos* that combined the functions of spit and fire dog, clearly a prestige item for use in feasting (Taramelli 1921: 57–8, fig. 79; Mohen 1977: 37–8, fig. 6), that was found in the grotto sanctuary at Pirosu (Mederos Martín 1996: 102). Eighteen similar articulated spits have been found in locations along the European Atlantic seaboard, where the type was at home (see Mederos Martín 1996: fig. 2). In the east another was found in Amathus in Cyprus in Tomb 523, dated to CG IB (1000–950), which also contained a fibula of Iberian (Huelva) type (similar fibulae were also found at Kourion and Kition) (Karageorghis and Lo Schiavo 1989a; Mederos Martín 1996: 98–9 and table 3). Karageorghis concluded that the *obelos* was evidence that in the eleventh or early tenth centuries, new (or renewed) trade routes stretched from the Levant and Cyprus to the Iberian peninsula (Karageorghis and Lo Schiavo 1989a: 16; see also Lo Schiavo 1995: 49–51; Mederos Martín 1996: 107–12). But by this time, the talk is of renewal, for the vast interactive maritime network in the Mediterranean had already essentially collapsed, at least in part falling victim to what has been called, rightly or wrongly, the attacks of the Sea Peoples.

Some of the evidence for widespread maritime interactions in the Late Bronze Age foreshadows these enigmatic Sea People whom Ramesses claimed to have fought and defeated. The Sea People did not really come out of nowhere. Two of the ships in the graffiti at Akko have been seen as representing a new type of vessel for the area, a long boat with a cutwater that was similar to Aegean vessels of the fourteenth–twelfth century BC. The same boat-type was portrayed in engravings at Teneida in the Dakhla Oasis in the Western Delta (Basch 1997). which also included small figures representing men, some holding small boats in their hands. Basch concluded that the men were Meshwesh, one of the Sea Peoples (1997: 27), who fought as allies of the Libyans

against Egypt during the reign of the Ramesses II's successor, Pharaoh Merenptah (I. Shaw and Shaw 2000: 302–3). It has been suggested that the new boat-type was introduced by an early contingent of the Sea People, the Shardana or Sherden (Artzy 1987; M. Dothan 1989), who first appear in the Amarna letters,[57] and who also settled at other sites on the northern coast of Canaan. Hints of the Sea Peoples were also found at Akko in sherds of Mycenaean IIIC:1 pottery, often associated with those people (see Chapter 8); one of the sherds came from a pot apparently used in the dye process; another was a fragment of a krater that bore the representation of a bird – possibly a forerunner of the bird motif that in the Iron Age became emblematic of the settled Sea People, the Philistine bird (T. Dothan 1982: 198–203 figs.61–3; Yasur-Landau 2008: 216–20).

Notes

1 N. Demand, "The Dark-Age Origin of the Polis: The 'Fantastic Cauldron' Model," paper read at the meeting of the Association of Ancient Historians, University of Missouri, Columbus, May 2005.
2 See http://www.ancient-egypt.co.uk/Deir%20el%20Medina/pages/deir_el_medina_4.htm #Village (accessed March 14, 2011).
3 Dates of the pharaohs are from I. Shaw (2000), see his comments on chronological calculations and problems, p. 479.
4 On the city, see Kemp (1976); on Akhenaten's religious reforms, see Redford (1992: 377–94). Web sites: www.amarnaproject.com (accessed March 14, 2011). http://freepages .history.rootsweb.ancestry.com/~rgrosser/amarna/neywetaten/index.htm (accessed March 14, 2011).
5 Translated by Moran (1992); the letters are numbered EA. A selection of translated letters: http://realhistoryww.com/world_history/ancient/Misc/Egypt/a_Menu_Amarna_Letters2 .htm (accessed March 14, 2011).
6 That Alashiya was Cyprus is confirmed by recent analyses of the clay in the Amarna tablets sent by the ruler of Alashiya to the Pharaoh that have identified the clay souce as Cypriot; this seems to have definitively settled the question in favor of the identification of Alashiya as Cyprus, see Goren, Finkelstein, and Na'aman (2002), Goren *et al.* (2003); Knapp (1996c).
7 No. 24A, from Urhi-Teshshup of Hatti to Adad-ninari of Assyria, but the identity of the kings involved is in dispute, see Bryce (2003: 83 and n. 21); translation also in Cline (1995a: 144).
8 The archive of some ten thousand tablets inscribed in cuneiform alphabetic was found by Winckler in excavations at Boğazköy (Hattusa) that began in 1906; translated in Beckman (1999).
9 The latest collection is by Dietrich, Loretz, and Sanmartin (1995), without translations; KTU is the abbreviation used to refer to these texts. The original numbering system of the Ugaritic texts used RS for "Ras Shamra," followed by the campaign number and the item number; later RS was followed by the year of discovery and the item number. Some texts have more than one RS number because they consist in pieces later joined together.
10 http://realhistoryww.com/world_history/ancient/Misc/Egypt/a_Amenhotep.htm (accessed March 14, 2011).
11 On the fleet, see Linder (1981: esp. 40).
12 In a letter to the ruler of Ugarit [RS 20.212], the Hittite king asks why Ugarit has not supplied the one (or two?) ships and manpower he had requested for the transport of a large shipment

of grain by the merchants of Ura in order to relieve a famine. In an apparent follow-up letter [RS 20.158], the Hittite ruler asks for the full mobilization of all the ships of Ugarit in the face of the growing emergency (Linder 1981).

13 A.B. Knapp, 1979. "A Re-examination of the Interpretation of Cypriote Material Culture in the MCIII–LCI Period in the Light of Textual Data." University of California, Berkeley; not seen, cited in Knapp (1983: 43).

14 Negbi 1986: 114–16, Negbi 1992 is more confident in attributing urbanistic elements to Levantine impact.

15 The cemetery of Palaepaphos-*Skales* dates to the eleventh century, see Maier and Karageorghis (1984: 123–58); Karageorghis (1983).

16 On Cyprus in the thirteenth century, see Negbi (1986); Karageorghis (1990a); Cadogan (1998).

17 For comparative sizes of urban areas, see Merrillees (1992: app.1: 328); estimates of area are extremely problematic, as can be seen from Merrillees chart: according to Swiny (1981), the area of Kition was 700,000 m2 and Hala Sultan Tekke 270,000 m2; Negbi had no comparative numbers; and Åström (1996) estimated Hala Sultan tekke as 276,000 m2 and Kition as 1,162,500 m2. See also Rupp (1998).

18 The two ashlar-built "bastions" are now understood to have been parts of the quay, see Raban (1983: 239–40).

19 http://antiquity.ac.uk/projGall/jasink/index.html (accessed March 14, 2011).

20 On the process of copper production, see Knapp, Kassianidou, and Donnelly (2001).

21 Vance Watrous, paper read at the Annual Meeting of the Archaeological Institute of America, Montreal, January 2006: "A Tale of Six Harbors – Kommos, Poros, Amnissos, Gournia, Mochlos, and Zakros: Trade and Social Structure in Crete."

22 On the excavations, see Dikaios (1969–71, esp. vol. 2); Courtois, Lagarce, and Lagarce (1986: 5–20, figs 1–200); a useful summaries of the site are provided by Negbi (1986), Keswani (1996), and Crewe (2007). Since 1974 it had been in the Turkish zone and not available to excavation.

23 Keswani (1993; 1996): Pyla, Kition, Hala Sultan Tekke, Maroni-Vournes, Kalavasos, Kourion-Bamboula, Kouklia/Palaepaphos, *Maa*, and Toumba tou Skourou; she notes, however, (1993, n.1), that Pyla and Maa are problematic, since the issue of their establishment by the Sea Peoples is still unsettled; see Chapter 8.

24 Goren *et al.* (2003), offered three possibilities: a single authority located in the mountains; a single authority that shifted its location from Enkomi (sixteenth century) to Alassa or Kalavasos (late fifteenth–early fourteenth centuries); or a number of competing factions or a federation of independent polities – as Merrillees (1992); Keswani (1993, 1996) – with Alassa or Kalavasos as overlord or *primus inter pares*; Muhly suggested a series of regional metallurgical centers, each under the control of a local ruler but using a common production technology, along the lines of a peer-polity model – in other words, a heterarchical structure, such as suggested by Keswani; Knapp (2008), has remained a proponent of the position that Cyprus was under hierarchical rule – although perhaps by more than one king – during the MC III–LC III period.

25 Dietrich, Loretz, and Sanmartin (1995): KTU 2.42 + 2.l43; Linder (1981); Knapp (1983), disputing Lipinski (1977), who regarded the recipient of the letter to have been Amenhotep III of Egypt.

26 Discovered in 1982 and excavated from 1984–94; Bass (1986; 1987; 1997); Bass *et al.* (1989); Pulak (1997; 1998; 2001); the ship is dated by dendrochronology to 1306 BC., or shortly thereafter; for dating and an extensive bibliography of the excavations at Uluburun, see the web site of the Institute of Nautical Archaeology at the University of Texas, http://ina.tamu.edu/ub_main.htm (accessed March 14, 2011).

27 See discussion in Pulak (1997, 237–8); Hauptmann, Madden, and Prange (2002).
28 Web site of the Institute for Nautical Archaeology, http://ina.tamu.edu/capegelidonya.htm (accessed March 14, 2011).
29 With closest parallels from Cypriot sites of Myrtou *Pigadhes*, Pyla *Kokkinokremos*, and Maa *Palaiokastro*.
30 But see various opinions in the papers published on the web site: http://www.ancientcyprus.ac.uk/Papers/index.html (accessed March 14, 2011).
31 See discussion in Cline (1994: 85–6, 91–3, 100–1).
32 "Sailors' trade": Artzy (1998).
33 They also obtained copper from Aegean islands sources and Lavrion on the Attic coast.
34 http://projectsx.dartmouth.edu/history/bronze_age/lessons/les/16.html (accessed May 26, 2011).
35 http://www.fas.harvard.edu/~semitic/wl/digsites/Aegean/AyiosStephanos2006 (accessed March 14, 2011). http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/24.html#6 (accessed March 14, 2011).
36 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/9.html#7 (accessed March 14, 2011).
37 Because it was found with lapis lazuli, which is only present in that region, Stech and Pigott (1986).
38 The "Mycenaeanization" of Crete is a hotly disputed question, see the papers in Driessen and Farnoux (1997).
39 For the debate, see Rehak and Younger (2001: 452–4 and n. 477).
40 http://projectsx.dartmouth.edu/classics/history/bronze_age/lessons/les/25.html#2 (accessed March 14, 2011).
41 The definitive article is Killen (1985); see also his responses to new views, Killen (1999).
42 For a recent review of the Mycenaean scene on the southern and central Greek mainland, see Shelmerdine (1997); on the rethinking of this question, see Halstead (1992a); Tegyey (1988); Carlier (1984); Bennett (1988a; 1988b); and the papers in Galaty and Parkinson (2007) and Voutsaki and Killen (2001). Shelmerdine (2001) sees increasing centralization – a defensive drawing-in – at Pylos during LH IIIB, with lessened concern over control of the more distant areas.
43 In the K series some vessels are listed that may be ceramic, but even if so, the listing is exceptional and would not constitute evidence that the palace controlled pottery making.
44 But still a tripod; see Chadwick (1958: 81–4); Palaima (2000).
45 The only other holders of this designation are a fuller and an armorer.
46 Or at least processed it for further shipment on Ugaritic ships; Hankey (1979: 154); Hirschfeld (1990; 1992; 2002); Bourke and Sparks (1995: 156).
47 Tegyey (1988) suggests that activities connected with primary production were independent of the palace; Palaima (1988: 95): the paucity of references to potters in the tablets, "must imply minimally that the production of ceramic pottery was not controlled directly by the centralized record-keeping administration"; on the other hand, Sherratt (1999: 182, n. 47) interprets the find of a kiln at Tiryns as evidence for palatial "supervision over pottery quite evidently produced for overseas export" – the question hinges on the significance – and description – of a location – *at Tiryns* vs. an area of small domestic buildings *outside the wall* at Tiryns.
48 Read to refer to visits by merchants from Ahhiyawa/Mycenaean to Amurru, who could have gone on from there to establish links with Assyria, although there is no trace of them at Ugarit. Bietti Sestiere (1988: 23–51), suggests that, by the time of the peak of imports, from LH IIIA1, direct Mycenaean involvement is probable.

49 The region between Tripoli and the Middle Orontes in Syria, its coastal area began just south of Ugarit and included Byblos; see Singer (1991).
50 Similarly, Sherratt and Sherratt (1991): Bronze Age economies can be regarded both as redistributive systems and as market systems.
51 Wachsmann (1998) for discussion of the evidence.
52 For recent finds in the Izmir region, see Akurgal (1983); Şahoğlu (2004; 2005, 2008); http://dergiler.ankara.edu.tr/dergiler/14/717/9085.pdf (accessed March 15, 2011); after the rebellion of Arzawa was crushed, the small neighboring state of Mira, with its capital at Ephesus, continued for three generations under kings, as attested by inscriptions (Hawkins 1998).
53 The identification of the Ahhiyawa of the Hittite texts as Mycenaean Greece, or at least a part of Mycenaean Greece (which probably comprised a number of small kingdoms, of which Mycenae may have been predominant), while not accepted by all, seems quite well established, see Bryce (1989a).
54 CTH 105 (Laroche 1971); see Bryce (1989b: 304–5; 1989a: 16–17).
55 Approximately 5,000 chamber graves were found at Pantalica, many imitating the shape of the Mycenaean tholos (Bietti Sestieri 1988: 44).
56 There is evidence for Messenian/Kytheran visits in the LH I period (Lolos 1999).
57 Letters to the Pharaoh from the ruler of Byblos: EA 81, for aid in a dispute with the ruler of Amurru, and, EA 122 and 123, again seeking protection against an attacker; however, according to Moran (1992: 393), this term probably has nothing to do with the Sea Peoples mentioned in Egyptian documents.

Chapter 8

The Late Bronze Age Collapse and its Aftermath

Collapse and Destruction

The complex system of exchange structured by the interactions of palatial states in the Late Bronze Age eastern Mediterranean collapsed at the end of the second millennium. The collapse took many forms and all the events did not occur everywhere at once. The system was so interwoven, however, that an explanation for its collapse has been framed in terms of catastrophe theory (Renfrew 1979): the failure of one minor element started a chain reaction that reverberated on a greater and greater scale, until finally the whole structure was brought to collapse. But while such an overarching general model is tempting, more can be learned by considering the smaller specific elements of failure that cumulatively produced the general, system-wide collapse.

Some of the specific factors that have been suggested as causes of the collapse, either alone or in combination, include (in no particular order), overextension of states, internal dissolution of states, climate change, famine, earthquakes, and hostile attacks. Of these, the last, in particular, the attacks of the infamous "Sea Peoples," is the most dramatic and has certainly received the most attention. Nevertheless, seaborne attacks can only have been a contributing factor; asking what set these attackers in motion brings more fundamental elements into play. Thus, considering the other individual possible causes seems to provide the best starting point for considering the collapse as a whole. A number of these can be seen in the case of the Hittite kingdom.

The Hittites: overextension, drought, internal problems

The Hittites provide a compelling picture of a kingdom suffering from a series of interrelated problems. The kingdom at times covered vast areas, but most were almost entirely dependent on rain-fed agriculture and herding, and thus were especially prone to drought. The situation was complicated by the fact that the Hittite kingdom lacked strong trade connections that could have supplemented these resources.

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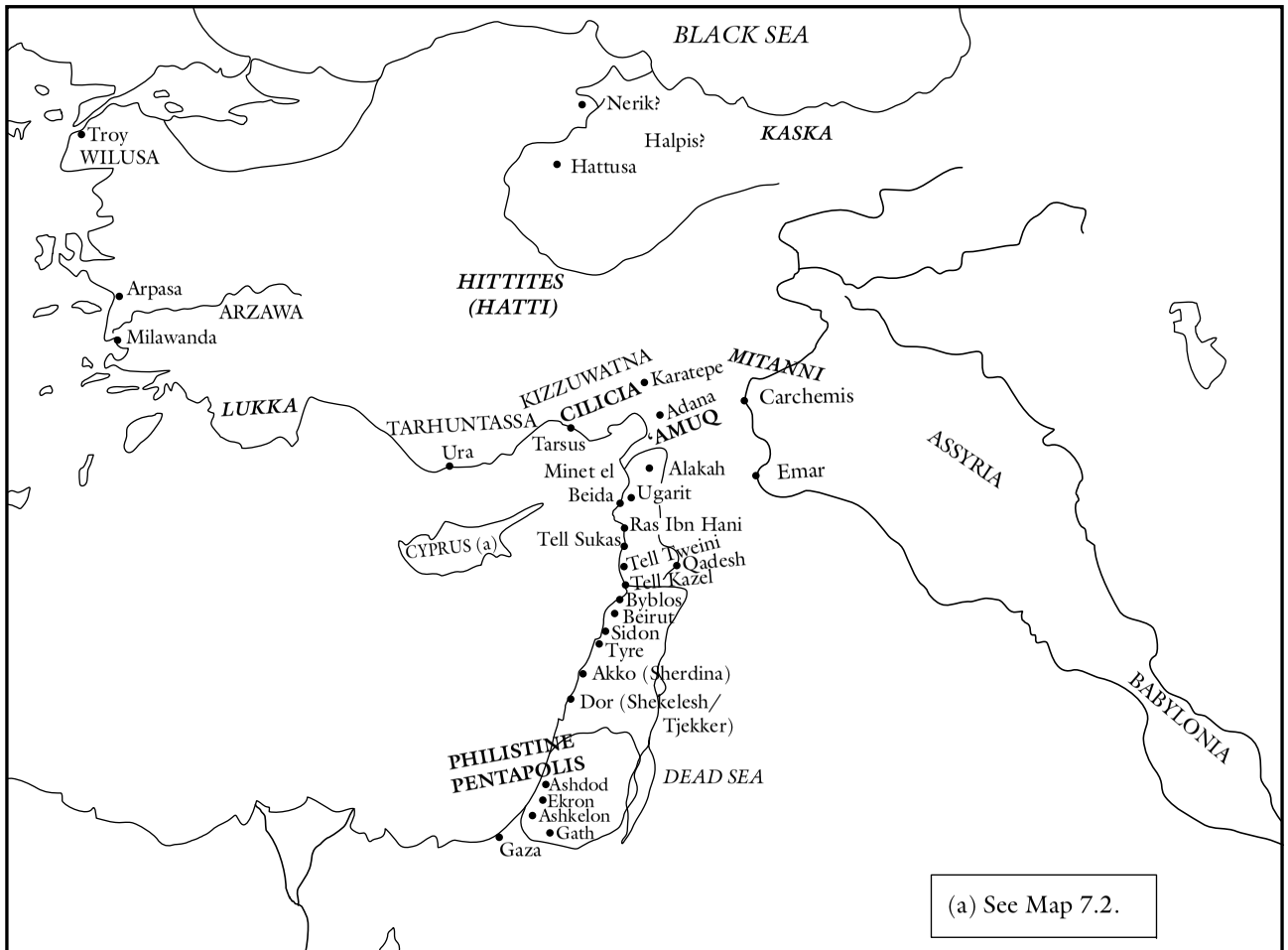


Map 8.1 The Hittites and the Levant.

That famine was a persistent problem for the Hittites is suggested by a number of letters from the Hittite king urgently requesting assistance, directly from Egypt or through the intermediation of Ugarit (Singer 2006). As early as the reign of Ramesses II a letter tells of a Hittite expedition to Egypt to organize a consignment of grain to be shipped by sea.[1] Another letter, the Tel Aphek letter from Ugarit, which also dates from the reign of Ramesses II (1230 BC), deals with an unpaid transfer of wheat by Adduya, probably the representative of the governor of Ugarit, to an unidentified person, probably at Joppa, an Egyptian administrative center known to have maintained royal granaries (Singer 1983, date from Singer). The writer requests restitution of the same amount of grain to Adduya. The pharaoh Merneptah also boasted of having given aid to the Hittites.[2]

As Klengel (1974) has pointed out, however, not every mention of famine in the royal letters need indicate a catastrophic situation; at times it may have been no more than a *topos* of correspondence about royal "gift" exchange or a reference to a commercial shipment for a land chronically short of grain. More specific mention of famine conditions provides stronger evidence, such as the demand by the Hittite queen during the reign of Ramesses II that the dowry for a Hittite princess be expedited because her country has no grain, and the request, in the last days of the Hittite kingdom, of the Hittite king to the king of Ugarit – either Niqmadd or Ammurapi – to send a ship load of grain to the Hittite harbor of Ura in Cilicia as a "matter of life and death."[3] Convincing textual evidence of famine also comes from the private records of Emar (Adamthwaite 2001; Singer 2006: 734–6),[4] a Hittite provincial town and commercial center located at a strategic point connecting Mesopotamia with the Mediterranean coast and with Anatolia. These texts record a large number of individual sales of family members and houses "in a year of war/famine," or made with the intention that the family members should live. The analysis of Anatolian tree rings also provides evidence for a severe drought in central Anatolia in roughly the same period.[5]

Klengel (1974) has pointed out that one of the characteristics of states dependent on rainfall agriculture is a tendency to be aggressively expansive: ever seeking to extend their supply base, they tend to expand beyond their capacities to govern the territory they "control" This was clearly the case with the Hittites. The Hittite realm at its greatest extent, under Tudhaliya I/II (ca. 1400) (Bryce 2005: 121–9), reached west to the Aegean coast, where Ahhiyawans/Mycenaeans had settled and continually fomented trouble by encouraging rebellious Hittite vassals (Moran 1992: EA 38: 7–12; Bryce 2003: 69). To the north, Hittite control extended to the Black Sea, infringing on the territories of hostile tribal peoples, most notably the Kaska, who carried on intermittent cross-border forays. The conflict turned more serious during the reign of Tudhaliya III (ca. 1330 BC) when, suffering from famine, the Kaska joined with neighboring tribal peoples and burned the Hittite capital Hattusa to the ground (Bryce 2005: 145–7).

After the burning of Hattusa, the king and his court probably took refuge in a nearby cult center while the capital was rebuilt. Later, during the reign of Muwatalli, the capital was moved south to the region of Tarhuntassa, which had access to the sea and perhaps offered better security from Kaskan raids. Muwatalli did not abandon the north, however, but entrusted important sites to the jurisdiction of his brother, Hattusili,

including the city of Hakpis and the holy site of Nerik, home of the storm god, on the route from Hattusa to Kaska territory. He thus reasserted Hittite control in the north, but also virtually partitioned the kingdom. Although the capital was later moved back to Hattusa, Tarhuntassa was subsequently governed by a branch of the royal family and became increasingly independent. The situation at Tarhuntassa underlined the fragmentary connections that held the kingdom together and the dynastic problems caused by a sometimes unruly royal family.

Along the southwestern coast in Lycia another troublesome group were the Lukka. Hittite texts describe them as a rebellious and warlike people who lived in scattered communities without any formal organization, existing mostly by piracy (Bryce 2005: 54–5. 124–7). They had a fluctuating relationship with the Hittites. In one Hittite prayer, they are referred to as denouncing the Hittite sun goddess of Arinna and joining with other tribal peoples to attack Hittite territory (Pritchard 1974: 396). During the mid-fifteenth century they were part of an alliance of 22 countries that fought against the Hittites, the Assuwan Confederacy, which was defeated by Tudhaliya I (Bryce 1986: 4–6; 1993: 128–9; 2005: 124–70). But in the Battle of Qadesh (ca. 1274 BC), the Lukka fought on the Hittite side, and Artzy (1997: 5) has suggested that they probably provided much of the shipping for the Hittites. By the end of the thirteenth century (1208 BC) the Lukka had ventured farther afield, as "Sea People" taking part in an attack by the Libyans on the western Delta defeated by the pharaoh Merneptah, a victory recorded on the Great Karnak Inscription.[6]

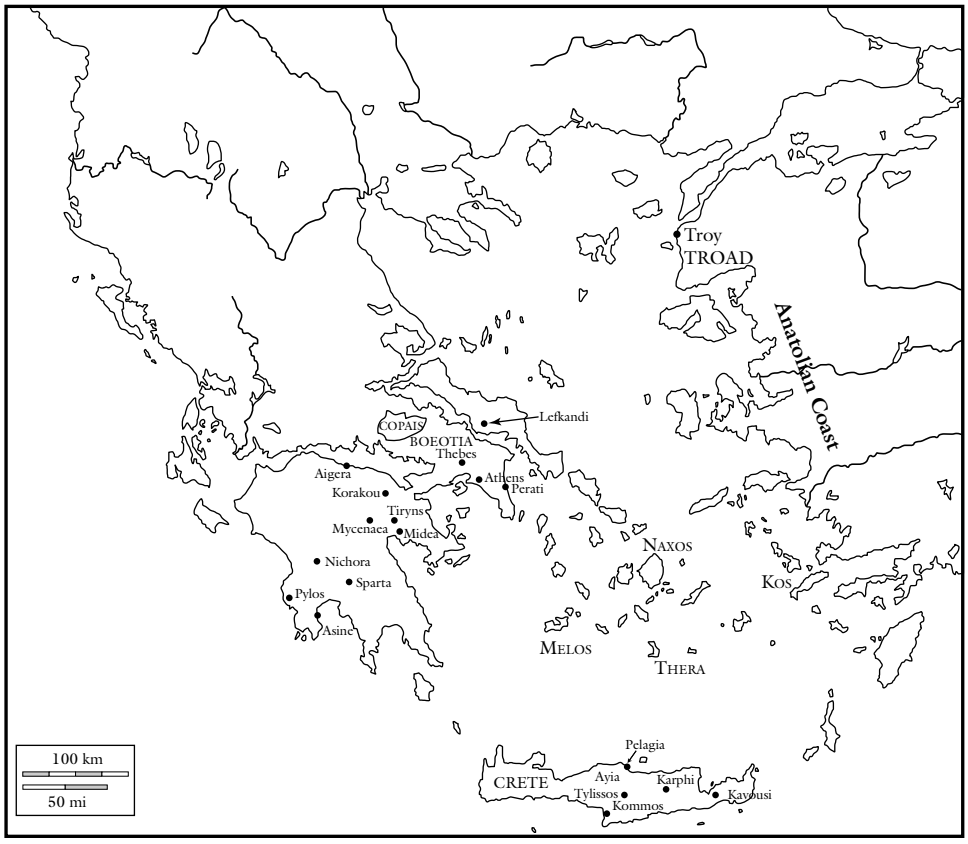
Along the northern Levantine coast as far as Ugarit, the Hittites exercised control by support of vassal kingdoms in competition with Egypt, although these vassals eventually favored Egypt as Hattusa was less and less able to offer them aid. Finally, to the east, the Hittites had an uneasy border with Mitanni territory, again, in competition with Egypt.[7]

In the face of these external threats, the members of the Hittite royal family fought each other. Muwatalli, the king who moved the capital to Tarhuntassa, was succeeded not by his brother Hattusili, but by his nephew Urhi-Teshub, the son of a secondary wife, who took the throne-name of Mursili. Although there were some objections to the succession, at first Hattusili supported the new king. Mursili moved the capital back to Hattusa, but Tarhuntassa remained a restless area. Relations between the new king and his uncle, Hattusili, became strained, and the king began to strip powers from his uncle, leaving him with only Hakpis and Nerik. But when Mursili moved to take even this jurisdiction from him, Hattusili rebelled. Joined by members of the Hittite nobility, some exiled by Mursili, Hattusili prevailed In the ensuing struggle. Mursili was formally deposed and his uncle seized the throne. But the nephew did not go quietly. He first conspired with the Babylonians and the Assyrians. Hattusili ordered him removed to a new place of exile, but Mursili remained defiant, appealing next to the pharaoh, Ramesses II, and eventually ending up in the Egyptian court. Ramesses refused to hand him over, but at some point the fugitive left Egypt. He surfaced again in Hatti, in the south, probably in the region of Tarhuntassa, where, Bryce speculates, he may have set himself up as Mursili III, king of the Hittites, in a kingdom in exile. But the attempt came to nothing in the upheavals at the end of the Bronze Age. Yakar has suggested that a major factor in the collapse of the Hittite kingdom was the disruption of supply routes caused by these dynastic problems (Yakar 2006).

At some point, roughly in the early twelfth century, Hattusa was abandoned and the kingdom fell into ruin, leaving a number of small independent states, the neo-Hittite kingdoms, in Cilicia and northern Syria (Hawkins 1995).

The Mycenaean Aegean: overextension, poor management, drought, earthquakes

While drought certainly figured in the ultimate collapse of the Hittites, in 1966 Rhys Carpenter proposed that it also played a significant role in the collapse of the Late Bronze Age in Greece. At first widely rejected, Carpenter's hypothesis has gained increasing support over time (Bryson, Lamb, and Donely 1974: 50; Moody 2005a; 2005b), and it now seems more likely than not that extreme weather and drought did severely affect many areas in the Aegean in the thirteenth and twelfth centuries BC (Moody 2005b; MacGillivray 2005). The study of weather patterns shows a repeated instability in global weather patterns in the LB III period, with significantly warmer temperatures in the Aegean and Crete (Moody 2005a; 2005b; MacGillivray 2005; contra Dickinson 1974; 2006: 243).[8] There is significant evidence for the effect that



Map 8.2 The Aegean.

these extremes of weather had on Greece, where efforts to cope with drought conditions can be seen in the building of water-control works: dykes and channels in the Copaic basin, earthworks to trap water at Pylos, and enclosed and protected means of access to water sources at Athens, Mycenae, Tiryns, and Midea.[9]

Mainland Greece also offers an example of a state (or states) that suffered from over-extension and poor management. In the case of the Mycenaeans, this cannot be attributed to an exclusively agricultural economy. The palaces produced trade goods, notably pottery and textiles, and, while there is no sign that the rulers of the palaces themselves engaged in trade, someone must have been exchanging those goods abroad and thus might have had access to food imports. Nevertheless, home grown grain was apparently not sufficient, for Vermeule (1960) attributes Mycenaean expansion to dependence on imports, notably grain from Anatolia. This may account for Mycenaean activities in coastal Anatolia, where they engaged in attempts to subvert local Hittite vassals, and at one point even attacked Cyprus (Moran 1992: EA 38: 7–12; Bryce 2003: 69).

Earthquakes were another disrupting factor in Greece, causing serious damage to the Mycenaean palaces. The Aegean region, in which a number of tectonic plates come together, is especially earthquake prone, a situation that at times results in clusters of earthquakes, or an "earthquake storm" (Nur and Cline 2000; Nur and Burgess 2008). The quakes may be spread over a number of years, as has happened in recent history in northern Turkey.[10] The widespread destructions at many sites in the Aegean and Near East around the end of the twelfth century BC (Stiros 1996)[11] suggest that an earthquake storm may have occurred at that time. In mainland Greece destructions occurred at many palace centers, severely damaging the main palaces and central administrative buildings. Often the damage can be specifically attributed to earthquakes by the presence of buried bodies or patterns of structural collapse.[12] Thus, at Mycenae, earthquake destruction was first recognized in the Panagia Houses when the skeleton of a woman covered with fallen stones was found in a doorway in House I, and a horizon of destructions identified as contemporary with the house destruction was dated to Middle LH IIIB (ca. 1250 BC) (Shear 1987: 17–19, 154–5, Plate 5B; E.W. French 1996).[13] Destructions at Tiryns have also been attributed to earthquakes,[14] and recently other mainland sites have been added: Kynos, in East Locri (Dakoronia 1996); Thebes (a woman buried in a collapsed two-story building) (Sampson 1996); and Midea in LH IIIB2 (ca. 1190 BC). The inhabitants of Midea appear to have fled the site, possibly taking refuge in Tiryns (Åström and Demakopoulou 1996), part of a number of *synoikismoi* to larger sites that occurred at the time (Kilian 1988: 134).

At many earthquake-afflicted sites there was recovery and rebuilding at first, with the construction of underground water supply systems at palatial sites, drainage works in the Copaic basin in the north, and the wall begun across the Isthmus, presumably intended to ward off an invading force and to enable the defenders to withstand a siege. It has been argued that these measures do not seem to have been rational responses to earthquake threat; however, such defensive constructions could have been intended to ward off raids from neighbors intent on looting a damaged palace or attempts by dissident elements within the population to overthrow their masters.

There is little direct evidence about hostile relations or attacks between the individual palace complexes, although the close proximity of some of them to their neighbors,

their massive size, and their cyclopean fortifications, do suggest a general atmosphere of hostility. Moreover, the construction of such monumental buildings and fortifications probably aggravated the problem by overtaxing the worker population, itself heavily made up of captives seized abroad, mainly in raids on coastal Anatolia. Overburdened workers with grievances could have been expected to seize any opportunity to revolt.

Mycenaean coastal sites were also vulnerable to increasing seaborne attacks, to some of which the Mycenaeans themselves may have contributed. The Pylos tablets calling up rowers and sending watchers to watch the coast (Ventris and Chadwick 1973: 188–94, 427–30; Chadwick 1976: 175–7) have been seen by some as anticipating a seaborne invasion that brought down the palace (Baumbach 1983). Although this interpretation has been rejected by experts on the tablets (Hooker 1982 and Palaima 1995),[15] the text does indicate a situation in which seaborne attacks of some sort were expected. Such an uneasy anticipation of attack, even if the actual attacks were minor, must have hindered trade by sea, and thus contributed to the problems that finally brought down the palatial system. Moreover, lawless conditions at sea would also have hindered any assistance reaching Greece from abroad, if any of its neighbors had even been inclined to help.

The destruction of Ugarit: poor management, external attackers

Probably the most consequential destruction of a coastal site in terms of long-distance trade, was that of Ugarit, now dated to ca. 1160 BC (Lipinski 2006: 36). The fall of Ugarit can be attributed at least in part to government mismanagement. The city had reached its greatest extent and prosperity in the fourteenth–twelfth centuries BC, largely as a result of its key position linking inland and maritime trade routes. A city of palaces, grand houses, temples, and libraries, it was a center of business and learning. A new form of writing, alphabetic cuneiform script known as Ugaritic, was invented there and used, with Akkadian, the standard language of international affairs, to record commercial dealings, internal political affairs, relations with neighboring powers, and religious texts. At the end of the Late Bronze Age, the population in the city center is estimated to have been 6,000–8,000; some 25,000 are estimated to have lived in the countryside in agricultural villages and in the surrounding hills, which provided pasture for animals and wood for building (Calvet 2007: 208).

Many of the affairs of the kingdom were in the hands of corporations made up of merchants and, while there was a king, governance seems to have been to a large extent corporate (see Chapter 7). Ugarit's last king, Ammurapi, however, who was young and inexperienced, increasingly centralized and concentrated power in his own hands until he became the sole decision maker. He emphasized his royal power by iconography, as in a gold cup decorated with the royal hunt (Yon 2006: Cat. of Artifacts No.7), and the stele of "Baal with Thunderbolt," on which a small figure appears in priestly dress, probably representing the king as thunder god (Cat. of Artifacts No. 18). [16] He withdrew more and more from contact with the common people, associating mostly with the *maryannu*, the wealthy elite who were supported by the palace in return for military service. As a result of the king's favoritism, the *maryannu* were able to accumulate large amounts of property and were allowed to replace the military service they owed in return for their property by payments in silver. Meanwhile, large numbers of workers and villagers, living meager lives in the countryside, crowded into the city in

the hope of obtaining assistance, subdividing houses in the effort to find living space. As a result, the kingdom became increasingly dysfunctional, adding to its natural weakness as a commercially oriented state that relied for security on the delicate balance of relations with its larger neighbors and allies.[17]

The exalted status held by some of the *maryannu* can be seen in the largest private house in the city, identified in the 1992–3 seasons of excavations. It is known as the house of Urtenu because it contained the cuneiform documents of a high-ranking official named Urtenu (Yon 1995; 2006: 87–8). His library, which contained more than five hundred texts, second in number only to those found in the palace, reflected the varied activities of this wealthy household. Urtenu can be identified as one of the *maryannu* by numerous references to horses and chariots, marks of this high status, as well as by a Syrian cylinder seal portraying a chariot hunt, and finds of horse and chariot gear (alabaster pulleys or knobs). His high rank is also evidenced by the many letters he sent to the queen, as well as to the king of Cyprus, whom he addressed by name (Kushmashusha) and as son (possibly in this case an actual family relationship). Other letters attest to the business dealings of Ugarit with Emar and Tyre, in which he sometimes served as representative of the queen and whose kings he addressed as "brother." He dealt with shipments of grain and oil and disputes about this trade, including with three non-royal businessmen with particular ties to Tyre and Sidon who specialized in the maritime trade of wheat between the Hittites and Egypt. Dealings with foreign powers are also attested by imported treasures: large serpentine and alabaster vases, Syrian ceramic craters decorated with geometric motifs, and Minoan and Mycenaean pottery, including "Pastoral" or "Rude Style" vases that date the collection precisely to the last years of the thirteenth century.

A letter found at Ugarit presaged the disaster that was to come: dating to ca. 1200–1185, it was sent by the Hittite king and was addressed not to the king of Ugarit but to the prefect. Notably, it sought information about "the Shikila who live on boats," and expressed concern about the youth and lack of knowledge of the king.[18] These Shikila were probably the Shekelesh/Sheklesh/Shikala, who were part of the combined force of "Sea People" who attacked Egypt in 1208 BC, and again in 1176 BC. Since Ugarit was suffering from royal mismanagement, and was soon to be destroyed by an attack, probably attributable to the "Sea Peoples," the Hittite king's concern was not without basis.

The destruction of the city was complete, but there is no evidence of a massive slaughter. Rather, it seems that the people left in an abrupt and disorderly fashion during the attack (Liverani 1979: 134–6; Yon 1992: 114). There is, however, no basis to the idea that a hasty and dramatic departure had left the "last tablets" warning of attack still unbaked in the ovens, for there is no evidence for ovens, or for the baking of tablets (Millard 1995).

Migrations and Resettlements

In the face of increasing unrest, many people looked for avenues of escape. The resulting settlement changes shaped the coming Iron Age. They were especially marked in Greece, where many died or fled in the face of repeated attacks and destructions, some

joining the rabble that collectively became known as the Sea Peoples, to find new homes, some in Cyprus, some on the southern Levantine coast.

The Sea Peoples

Many people must also have seen the first sign of trouble in the form of raiders approaching from the sea, as did those in Ugarit. As early as the reign of Akhenaten there were sporadic attacks on various coastal sites. Some of the earliest of these were carried out by Ahhiyawans/Mycenaeans who had settled on the western Anatolian coast and made at least one attack on Cyprus. Such attacks occurred with growing frequency and destructiveness. Assaults on Egypt were reported in the written records of that country: inscriptions during the reign of the pharaoh Merneptah name the attackers on Libya and Egypt as the Lukka, Sherden/Sherdena, Ekwesh, Teresh, Shekelesh, Labu, and Meshwesh.[19] Other groups attacked Libya in Year 5 of Ramesses III's reign and were defeated (Breasted 1927: vol. 4 nos 35–8). But the most famous assault on Egyptian territory was the one he attributed to the Peoples of the Islands, or the Sea Peoples, which occurred in Year 8 of his reign (ca. 1190 BC) and was memorialized in his mortuary temple at Medinet Habu (1927: vol. 4, nos 59–92; O'Connor 2000; Redford 2000: 8–13). In this inscription, aside from the Shekelesh, a different group of attackers are identified from those who attacked in the reign of Merneptah: the Weshesh, Danyen, Tjakker, and Peleset. As Cifola (1988) has pointed out, Ramesses' inscription conflates a number of smaller attacks by various peoples at various times into one grand tale, and lends them an unlikely degree of organization and common purpose. Even the portrayals of the fighters, which seem to provide information about their customary dress and equipment, probably resulted less from an intention to represent them accurately than from a propagandistic emphasis on their fearsome and bizarre appearance, which further bolstered the greatness of the pharaoh's accomplishment in defeating them (Oren 2000).[20]

During this period raiders also attacked Crete, sending many of the local peoples to refuge sites high in the mountains from which they could keep an eye out for an approaching enemy (Nowicki 2000, 2001). Small settlements and shrines of the twelfth to tenth centuries have been found at such refuge sites, such as Karphi (Nowicki 1987b; Cadogan 1992) and Kavousi (Preston Day and Snyder 2004). The harbor site of Kommos on the southern coast, which had been a major international port in the Bronze Age, seems to have undergone a hiatus after ca. 1250, with the town and the civic buildings deserted (Shaw 2004: 48). Habitation continued, however, at the lowland site of Knossos (Warren 1982–3; Coldstream 1991), which was well inland.

Who were the "Sea Peoples"?

As for the "origin" of the migrating "Sea Peoples" who attacked Egypt in Year 8 of Ramesses III, Barako and Yasur-Landau, in a debate about the specific route by which they travelled, have recently resurrected the hypothesis that their original home was Greece and the Aegean coasts (Barako 2003a, 2003b),[21] but they have not agreed on the route they took. Yasur-Landau (2003, 2010) argues for land routes. Barako (2003a; 2003b), on the other hand, proposes that they came mostly by ship, arguing that overland travel would have been physically challenging and politically forbidding, while a

sea route offered no such obstacles to a population with maritime experience. Moreover, travel by sea was faster. He suggests that they moved in stages, making use of coastal bridgeheads. As for ships, he estimates that a fleet of perhaps 100 penteconters, plus a few cargo ships, would have sufficed (Barako 2003a; 2003b). The ships required were fairly simple and rapidly constructed, and most people living near the sea had ship-building experience. Homer describes building a boat (Homer, *Odyssey* 5.244–61), and even today in any coastal village you will see people building boats. The groups, according to this scenario, came together at a point in Canaan, with the women and children moving on by land in ox carts, while the men, prepared to fight, proceeded by sea.

On the other hand, Yasur-Landau (2003; 2010: 190–2) holds that the Sea Peoples traveled mostly overland. He argues that they were refugees, not from the Palatial stage of Mycenaean culture, but from the Post-Palatial period, when, despite the palatial destructions, a good deal of social structure remained (as at Tiryns) which allowed them to achieve a high level of organization in the migration. Nevertheless, he suggests that they would have found it very difficult to meet the costs of providing a large fleet of ships and would have lacked the organizational ability, as well as the navigational skills, to manage such an enormous naval undertaking – despite the fact that the Egyptian records describe them as "the people who live on boats." In contrast to the difficulties of a sea-based attack, he argues, moving overland would have been made possible by the widespread destructions at the turn of the century, and especially by the collapse of the Hittite empire, which would have removed many political obstacles to overland passage. Moreover, the Medinet Habu inscription does picture some refugees arriving in ox carts (although it emphasizes their ships) (Yasur-Landau 2003). Yasur-Landau, however, fails to take into consideration the very difficult natural terrain of Anatolia. The south coast is dominated by mountains, with sharp cliffs dropping precipitously to the sea. Only very recently has a highway been constructed that allows easy passage along the coast. Inland, the few passes that give access to the sea (Cilician Gates into Cilicia, and the Amanian Gates into the Amuq) would have been difficult to negotiate without modern roads, especially with ox carts! After all, the central plain, surrounded on all sides by formidable mountains, had earlier delayed the westward spread of the Neolithic revolution for generations (see Chapter 3).

The question of the route and mode of travel of the Sea Peoples probably does not have a single, simple answer. The movement was not a well-organized, monolithic expedition (Cifola 1998; Birney 2008) but was made up of already disorganized and desperate people. Probably starting from various locations, not only in mainland Greece, but along the Anatolian coast, they must have proceeded by whatever means they could muster, either by sea or by land.[22] A few even seem to have originated in non-Aegean areas: the makers of Handmade Burnished Ware, who settled mostly in Cyprus and in Tell Kazel on the Levantine coast. Any who came from mainland Greece must first have taken to their boats and moved across the Aegean, with many stops along the way, proceeding from island to island, perhaps even testing areas for their potential as permanent homes as they moved. It seems unlikely that, having reached the Anatolian coast, they would have proceeded inland: they already had boats, and the route eastward along the coast was well known and traveled. It seems from the archaeological evidence that many reached Cyprus and that some settled there, while others appear to have stopped long enough to learn the Cypro-Minoan script, which they took with

them as they traveled on (Cross and Stager 2006). Those who moved on were brought to a stop by Egyptian resistance if not by outright defeat, as the pharaoh portrayed it. They eventually settled on the southern Levantine coast, where they established several well-planned and urbanized settlements.

Most scholars, however, now attribute not a Greek but a basically Anatolian, or western Anatolian origin to the Sea Peoples, as Bryce argues for the groups that attacked Egypt in Merneptah's reign (Bryce 2005: 334–40; Singer 1988). This is clearest in the case of the Lukka, who are securely located on the south coast of Anatolia, roughly in what is today Lycia. It is probably also the case for the Denyen (Danuna), who seem to be associated with Cilicia, based on the name of the city of Adana, which is called Adaniya by Telepinus, an early Hittite king whose reign is now dated to1525–1500 BC.[23] Later evidence has been found in the Karatepe Inscription, a bilingual Luwian-Phoenician inscription found at Karatepe in Cilicia in 1946–7, and dated to ca. 700 BC. The person speaking in the inscription, '-z-t-w-d (Phoenician)/Azatiwataš (Luwian), professes to be king of the d-n-n-y-m/Danuna and describes his dynasty as "the house of M-p-š/Mukšuš/Mopsus" (Younger 1998). Bryce suggests that the Teresh were probably the Trysenoi, whose original home was in Lydia according to Herodotus. The Ekwesh were probably Ahhiyawan/Mycenaeans, remnants of the Mycenaean settlements left along the western Anatolian coast after the Mycenaeans lost their influence in the region. The Peleset may also have originated from Western Anatolia (Singer 1988), and the Tjekker have speculatively been associated with Teucer, ancestor of the Troad people known as the Teucri.

Greece

Whether or not any significant number of people from mainland Greece joined the Sea People, mainland sites suffered from the destructions of the period. At some sites, such as Pylos, the destruction was total and lasting. At others, however, desertion was followed by short-lived reoccupation (by whom is not always clear), only to be followed by desertion again, in a cycle sometimes repeated more than once. At still other sites, people remained in place, and temporarily achieved some degree of recovery, or had a second chance at new sites far distant from the mainland of Greece.

Tiryns belonged to the last class of responses. On the citadel, the Great Megaron was replaced by another megaron, Building T, and the Great Court was cleared and the altar transformed from a round to a platform-like structure (Maran 2000: 13–16; 2001: 113–16). The Lower City, after destruction by a flash flood, was extensively rebuilt in the early LH IIIC period, and a flood-control project was carried out by the construction of a 300-meter long lasting dam consisting of a huge earthen embankment lined with Cyclopean blocks and a 1.5-kilometer long canal (Maran 2001, 2002–3, 2006). The excavator, Klaus Kilian, called the revival of the Lower City "Mycenaean city life," to contrast it with earlier Mycenaean palatial life (1988: 135; 1978: 467–9. 135). It offers considerable evidence to support the hypothesis that the Mycenaean survivors possessed organizing and urbanizing skills that belie the model of mainland Mycenaean states as elites ruling over subservient masses of simple peasants. But the recovery did not last, and life in Mycenaean Tiryns became only a faint memory preserved in palatial ruins and Homeric tales.

At Mycenae there was also some impressive rebuilding, even wall frescoes,[24] but the inhabitants were never able to reestablish their hold over the surrounding territory, and in 1150/1125 the last destruction, the Granary Fire, occurred. From that point on, Mycenae ceased to be of any importance. Like Tiryns, it became a memory preserved in palatial ruins and Homeric poetry.

Perati, a site which occupied a natural harbor on the east coast of Attica, eclipsed Athens in the twelfth and eleventh centuries. The earliest burials at Perati were contemporary with the first houses at Lefkandi, and contacts were maintained between the two settlements. Finds made in the cemetery of Perati have provided evidence for large numbers of overseas contacts during this transitional period (Iacovides 1980; 2003), with Asine, Crete, Melos, Naxos, Kos, Anatolia, Cyprus, Syria, and Egypt (Cline 1994).[25] Eventually, however, with the loss of maritime contacts, burials at Perati ceased (ca. 1075), and the site sank into a depressed and impoverished existence.

Most smaller sites, however, suffered a permanent downward spiral. The agricultural village of Nichoria provides an example. Before the collapse, it had a population of some 600–800 people and possibly was under the supervision of a local official, a *basileus*, from palace at Thebes. The site was apparently deserted for about a century after the collapse (Thomas and Conant 1999; McDonald, Coulson, and Rosser 1978), although some of its population may have survived in the surrounding area by hunting and pasturing animals. In time the village was reinhabited by people who built simple timber-frame and mud-brick structures on the ruins of the palace and lived primarily by pastoralism. Population fluctuated from then on, and there was some low-level community organization (a relatively larger building that may have served for community storage and local meetings), but literacy and fine craft skills never returned.

Other sites had futures that could never have been predicted at the time, either at home or in overseas settlements. Athens was apparently exceptional in escaping the destructions, although preparations were made against attack by providing underground access to the water supply (the fountain house) and by construction of the fortification wall.[26] Evidence from tombs and refuse pits suggests that, from the Mycenaean into the Sub-Mycenaean period, settlement was not nucleated but took the form of a number of villages around the Acropolis. According to tradition, Athens provided a temporary haven for refugees from Pylos, including the Neleid kings, who were sent on to establish homes on the western coast of the Aegean (the Ionian Migration).

Lefkandi, on the southwest coast of Euboea opposite Boeotia, was another site with a fluctuating lot, but an unexpected future, in this case, in a far distant location. On one of the main maritime routes to the west and the site of settlement from at least the Early Bronze Age, it became a refuge site ca. 1200, with an influx of refugees. By the end of the century, however, it was abandoned. Reoccupied in the eleventh century, it played an important role in the tenth century in the active trading sphere called the Euboean *koine* (see Chapter 9) (Popham, Sackett, and Themelis 1980; Popham, Touloupa, and Sackett 1982; Popham and Lemos 1995; 1996; Evely 2006; Sherratt 2006a: 12; Lemos 1998; 2002: 212–17) before falling victim to the Lelantine War –and apparently contributing to Greek westward settlement (the first Greek "colonization") with the establishment of Pithekoussai on Ischia in the Bay of Naples.

Cyprus

Like some Lefkandians, other refugees from the destructions in Greece, the Aegean, and Anatolia eventually found new homes abroad. While some stopped on the Aegean islands and Rhodes, the most viable first refuge for those coming from the west seems to have been Cyprus, an island with which the Mycenaeans had long had trade contacts.

Evidence for at least the temporary residence in Cyprus of newcomers may be seen in the existence of two new settlements made in the transition from LC IIC to LC IIIC (ca. 1200 BC) on the south coast of Cyprus, at Maa-*Palaeokastro* and Pyla-*Kokkinokremos* (Karageorghis and Demas 1984; 1988). Both were well fortified – Maa was especially well secured against attacks both by sea and by land. Neither site fit neatly into a Cypriot settlement scheme based on copper production and transport. Both settlements were short-lived, however, and, as Karageorghis has noted, both bore a strong resemblance to the naturally fortified, difficult-of-access coastal refuge sites that appeared on Crete in roughly the same time period (Nowicki 2001; Karageorghis 2001).[27]

The characteristics of these settlements support an Aegean origin for the migrants. At Maa there were well-built houses and public buildings; ashlar masonry; monumental central hearths constructed with pithos sherds, a technique also used in hearths at Tiryns;[28] a dogleg gate in the fortification wall; and bathtubs.[29] Finds included a piece of Handmade Burnished Ware (Pilides 1994, 1996); fibulae; gold rivets for a sword of Aegean type; and LH IIIB pottery (pre-palatial destruction in date), including a mended chariot krater. The inhabitants engaged in metalworking, producing tools, weapons, and sling bullets (Karageorghis 2001: 4).

At Pyla-*Kokkinokremos*, finds show that the settlers included craftsmen with extensive trade contacts. Trade literacy is attested by a set of weights on which signs of the Cypro-Minoan script were incised as well as by other incised or painted signs of Cypro-Minoan script on pottery fragments (Masson and Masson 1984).[30] Similar use of Cypro-Minoan script has been found on Philistine sites, suggesting the ultimate destination of some of these people (Cross and Stager 2006). Other evidence for the presence of traders includes a set of stone weights, a seal, and a scarab. Evidence for metallurgy was found in the buried hoards of a goldsmith and a bronze smith, never retrieved, and two silver ingots. Pottery remains included fragments from an amphora of LM III ware with stylized octopus, a number of fragments of Mycenaean IIIB pottery, a local imitation of a Mycenaean IIIB vessel (Karageorghis and Demas 1984: 73, 74), and Mycenaean IIIB vessels of Levantine type.

Both of these sites had short lives. Pyla was abandoned within about 20 years (although bronze and gold hoards left behind suggest that the desertion was not intended to be final), and Maa was destroyed at that time. Maa was later rebuilt, but on a much reduced scale; about 20 or 30 years later this rebuilt settlement was itself destroyed and the site was left unoccupied, its inhabitants possibly moving to Palaepaphos (Karageorghis and Demas 1981: 136; Maier and Karageorghis 1984).

Dispute over the identification and aims of the settlers at Maa and Pyla has strongly influenced views of Mycenaean and other foreign activity on the island. Were these settlers a first wave of refugees from the troubles in Greece, as Dikaios (1969–71) first suggested? [31] If so, the amphoroid krater found at Pyla, a shape typical of Mycenaean centers in Anatolia, may provide evidence for the route taken by the refugees

(Karageorghis and Demas 1984: 69), as also suggested by the discovery of Cypro-Minoan signs on pottery in Philistia (Cross and Stager 2006). Or were they local Cypriots defending their coasts against attack by sea by just that sort of intruder, as others have argued? (South 1984: 17; Negbi 1986: 116). Or were they a mixture of both, as Karageorghis has most recently concluded (Karageorghis and Demas 1988: 264–5; Karageorghis 1990)?

Changes also occurred in the island's older settlements. In the transition to LC IIIB, most of the existing cities were destroyed or abandoned, resulting in fundamental changes in the pattern of habitation. The main settlements associated with the production of copper – Kalavassos-Ayios Demetrios, Maroni, and Alassa – came to an end (Iacovou 2006: 325), although the production of copper on the island continued. Settlements at Enkomi, Hala Sultan Tekke, Kition, and Palaepaphos survived to become the island's main urban establishments (Karageorghis 1990a; 1992). An element in this movement can be seen in the suggestion that the population of Maa abandoned that site to settle in Palaepaphos (Karageorghis and Demas 1981: 136; Maier and Karageorghis 1984).

Most scholars, even those who contest the earlier arrival of a substantial Aegean influx, are willing to admit the arrival during this transitional period of large numbers of people from the Aegean, especially Crete (Catling 1994; Desborough 1972b: 58, 114; Tzedakis 1979; Maier and Karageorghis 1984; Demetriou 1989, arrivals from Crete and Attica, especially Perati; Yon 1979; contra Nicolau 1979).[32] The introduction of the Greek language into Cyprus seems to provide indisputable evidence for this (Iacovou 1999b: 1–2; 2006: 324). A recent reaction against its interpretation as colonization, and specifically against what is called the "colonization narrative" (Leriou 2002; 2007), has led to a reframing of the situation as an influx of Aegeans/Mycenaeans into Cyprus, not, however, in the organized form that the term "colonization" implies but as the piecemeal arrival of various refugee groups from the mainland, each bringing the particular culture of its own "home town" to the island. These various newcomers, interacting with each other and with local Cypriot populations that already included a mix of Levantine influences, produced a result that some call "hybridization" (Voskos and Knapp 2008; Knapp 2008: 368–72).

The Phoenicians in the Northern Levant

Not all those who reached Cyprus stayed, however. Some moved on to coastal sites in the Northern Levant, in a route that has been traced recently by the spread of their cooking ware – the "Cooking Pot *á la stéatite*," a subset of the band-handled cooking pot (BHCP) (Birney 2007: 342; 2008). The cooking pot, Birney argues, is, as a humble piece of household equipment, a reliable ethnic marker. After the destruction of Ugarit, signs of refugee presence appear in these cooking pots found in neighboring Ras Ibn Hani in the "squatter phase" following the destruction; the sites of Tell Sukas and Tell Daruk produced many examples, and the pots are frequent among ceramic finds in Tarsus and in sites in the Amuq. In each case, they appear a little later than the Mycenaean-style pottery that many associate with the Sea Peoples (Birney 2008).

The site of Ugarit was not occupied again for over a thousand years, but the northern Canaanite cities seem to have escaped the worst of the ravages of the Sea Peoples,

possibly through collaboration and alliance (Bikai 1987b; 2002: 132).[33] Nevertheless, the short-term peripheral effects of the interruption of international trade may nonetheless have been severe. Opinions on this differ, and the question is hard to resolve because of the scarcity of evidence for the period (see Stieglitz 1990; Markoe 2000: 23–6; Stern 1990: 332).[34] The port of Ras Ibn Hani, in the near vicinity of Ugarit and the site of the northern palace that probably belonged to the queen of Ugarit, was almost immediately rebuilt. A building constructed at the beginning of the twelfth century (Bounni, *et al.* 1978: 245–57) and finds of Mycenaean-style pottery and cooking pots "*à la stéatite*" suggest that the occupiers were Sea People (Birney 2007: 378–41; 2008).[35]

Other Canaanite sites along the north Levantine coast appear to have suffered little permanent damage in the upheaval, but over the subsequent years the major cities have been continuously built over, often with monuments of later periods that have their own significance and provide tourist attractions, leaving only cemeteries available for investigation. Moreover, Lebanon has suffered repeatedly from the devastations of war, making excavation difficult, or, in some cases, impossible. At Byblos, which became the predominant port, recent fighting continues to cause damage to objects in archaeological storerooms (Lagarce and Lagarce 2000).

At Tyre (Bikai 1978, 7,8; 65–6; Pritchard 1978: 10), the existence of archaeological showpieces of the Hellenistic and Roman periods makes access to earlier levels in these areas impossible.[36] In 1973–4, however, Bikai was able to carry out a small test excavation on the edge of the Archaeological Preservation Area that for the first time confirmed occupation of the site from the Early Bronze Age, and she was also able to record one of the few sequences of archaeological materials in Phoenicia (Bikai 1978; Aubet 2001: 79). In Stratum XV the excavation revealed a full complex of rooms that seems to have been used for the manufacture of beads. The stratum contained a great deal of Cypriot White Slip II pottery, dating it to ca. 1375/1360 BC, as well as some Mycenaean IIIB material and Cypriot Base Ring II wares indicating that occupation continued into the LC IIC period, One scarab was found, perhaps from the reign of Ramesses II, and a cylinder seal probably from the time of Tukulti-Ninurta I (1244–1208 BC). Thus Stratum XV must be dated from a time after 1375/1360 to after 1244 and probably down to 1200 BC (Bikai 1978: 7–9; 65–6).

In the following stratum, XIV, there was a marked drop in the quantity of Cypriot imports, but one Mycenaean IIIC cup was found that had parallels at Enkomi in a stratum dated to 1150 BC. The pottery was similar to that found in the Cape Gelidonya shipwreck and dated in that case to 1200 BC, plus or minus 50 years. The absence of Cypriot White Painted sherds confirms that the stratum must have ended before 1070/50 BC. Many of the walls were destroyed, and the area may have been abandoned for some time, but that it was not a complete abandonment is indicated by the fact that no wind-blown sand or sterile earth was found, and no evidence of overall massive destruction. In Stratum XIII (Iron Age), the area was rebuilt (Bikai 1978: 7–9; 65–6). In the written evidence, the Wenamun papyrus documents the existence of the port in the period ca. 1200–850 BC (see Chapter 9) (Goedicke 1975; Caubet 1992: 129).

At Sidon, a building of which only one room remains – a sunken basement room with walls partly of ashlar, and with other technological innovations such as the use of the

dovetail clamp – was destroyed by a fierce fire, with burnt beams that have been dated by calibrated C-14 dating to ca. 1390–1120 BC (Doumet-Serhal 2000; 2003: 15; 2002: Burnt building, 193–201; Doumet-Serhal 2004: 65–78). In the Iron Age, trade contacts with Greece are attested at Sidon by many finds of Euboean pottery, including a skyphos with pendant circles, one of the earliest exports of Greek pottery to the eastern Mediterranean in the first millennium BC. This excavation is, after Tyre, only the second systematic urban excavation in Lebanon; however, unlike Tyre, it offers "limitless possibilities," since the land has been appropriated by the state for archaeological research.

At Beirut, excavation in a number of areas under the administration of the Beirut Central District Archaeology Project has established the exact location and extent of the city and its continuous occupation from the third millennium until the present. The city was quite active in the Late Bronze Age, with a king concerned about trade relations with other city states (Daniel and Salvini 2000). Four pieces of Handmade Burnished Ware were found in the excavations of BEY 103, one with an incised decoration of an inverted palm design (Badre 1998: 76–7, 86).

Extensive excavations have been carried out at the smaller port city of Sarepta, mentioned in the Ugaritic texts of the fourteenth century, and in an Egyptian papyrus of the thirteenth century along with Byblos, Beirut, Sidon, and Tyre as one of the principal cities of the coast (Pritchard 1971, 1973, 1975, 1978, 1988; Anderson 1988; Koehl 1985; Khalifeh 1988). Because it has had no modern occupation, it has yielded valuable evidence from stratified remains. The city appears to have experienced little destruction at the end of the Late Bronze Age, but an absence of late twelfth–eleventh century imports probably reflects the difficulties of the period (Pritchard 1975, 42–6; Koehl 1985: 147). It revived in the following period.

Following Homer, the Greeks referred to the people of these northern Levantine coastal settlements collectively as Phoenicians, although they never applied that name to themselves. Rather, they identified themselves as Canaanites and considered that their cities were independent. There was no change of population to usher in a new "Phoenician" entity: the people were the same as those who had formerly been called Canaanites – they were simply transmogrified into Phoenicians by the Greeks. Nevertheless, from around 3200 BC historians use the Greek term, christening them all "Phoenicians" (Aubet 2001: 11–12).

Peleset/Philistine settlements

The cities on the south Levantine coast that are attributed to the establishment of the Sea People include the Peleset foundations, which later became the Philistine "Pentapolis" – Ashkelon (Stager 1986; 1991; 1993; 2002), Ashdod (Dothan and Freedman 1967; Dothan 1971; 1979; Dothan and Porath 1993), Ekron (T. Dothan 1982; 1989; 1990; 1995; 1998; 2000; Dothan and Gitin 1983; 1987; 1990; 1993; 1997; Dothan and Dothan 1992), Gaza,[37] and Gath [38] (Tell Qasile was established somewhat later than the Pentapolis cities, and in the Philistine periphery) (Bauer 1998:157). The Shekelesh/Tjekker are credited with the establishment of Dor (Stern 1990; 1993a; 1994; 1995; Gilboa 1989; 1998), and the Shardina with Akko (M. Dothan 1989; 1993).

Ekron is the most extensively excavated and widely published of the Philistine settlements and can serve as an exemplar. The site had been occupied from the Chalcolithic period (4300–3300 BC), but it reached its greatest extent in MB II (2000–1550 BC), covering the entire 50-acre tell. At the end of MB II, this settlement was destroyed and the site was abandoned, to be subsequently reoccupied (ca. 1400 BC) as a small village occupying only an area of about 10 acres on the upper tell.[39] In about 1200,[40] a heavy destruction layer marked a radical break in occupation, and the character of the site changed dramatically. Imports ceased, and locally made Mycenaean-style pottery appeared on the site in overwhelming quantities. This pottery, called Mycenaean IIIC:1b, which was the first recognized sign of the Aegean origin of these people, is characterized by monochrome decoration and continued Mycenaean traditions in forms, motifs, and colors. It now is recognized as a complex style with numerous variants, and is referred to by a number of different terms,[41] " Mycenaean IIIC:1b" having generally fallen out of favor with archaeologists. Pottery of this general type has been found not only in the coastal Levant, but also in Cyprus (Maa, Enkomi, and Palaepaphos/Kouklia), and in Syria (Ras Ibn Han), sites also visited or settled by members of the loose coalition of the Sea Peoples.

After destroying the Canaanite settlement, the Philistines built a new and much larger city that occupied the entire 50-acre tell. They followed a new urban plan, creating a "zoned" city with a central sector for public buildings and elite use, cult sectors, industrial zones, and residential areas. They fortified the new city with mud-brick walls (Dothan, 1990; 1995; Dothan and Gitin 1987; 1990), and constructed a monumental public building with a large central hearth room in the central, or elite, zone. Such hearths were not a feature of Canaanite culture, but they were an essential element of the Mycenaean megaron, and they have also been found on Cyprus.[42] The hearth at Ekron shared specific features with the Aegean hearth: a modeled edge with broad flat rim, white plaster-coated floor lipping up to it, and a stucco coating (Dothan 1990: 35; 1995: 45). Large numbers of distinctive loom weights of unbaked clay in biconical or rounded shape found in Ekron are similar to loom weights known from Ashdod and Ashkelon, and the type can be traced to Cyprus and Mycenaean Greece.

Finds in the public building suggest that it was used by the elite, perhaps for cult practices. Links with Cyprus include three ivory knife handles and a complete iron knife affixed by bronze rivets to a handle of elephant tusk with a ring-shaped pommel, dating to the eleventh century, a type known from contemporary sites on that island (Dothan 1995: 49–50, Fig. 3.18; Sherratt 1994b: 61). Another link with Cyprus was found in three eight-spoked wheels, part of a square stand similar to Cypriot cult stands that were lavishly decorated with pictorial scenes drawn from Aegean motifs (Dothan 1995: 48; fig 3.16). A double-headed bronze linchpin with a sphinx that closely resembles Cypriot sphinxes is considered by the excavator to be Aegean in origin (Dothan 1995: 49, Fig. 3.17). Another link with the Aegean is a twelfth-century incised ivory pyxis lid depicting a griffin, a lion, and two bulls in combat; the pyxis is an Aegean-type vessel, and the scene of animal combat is also Aegean in style (p. 53).

In the industrial zone along the city's walls, a large number of pottery kilns were found, providing evidence for the production of both Canaanite and Philistine pottery.

Sixty percent of the pottery found can be classified as Mycenaean IIIC:1b (Dothan 1990: 27). Also near the fortification walls a large metalworking installation was found, with a crucible bearing traces of silver. Other evidence for metalworking consists of the metal objects found on the site.

On the edge of the industrial area, a series of superimposed shrines was found which provides more evidence of the Aegean connections of the settlers. The latest level had a white plastered floor, benches, and a platform, with much bichrome pottery and fragments of animal and human figurines, including a lion-headed ritual drinking vessel (rhyton) (Dothan 1995: 48, Fig. 3.10). In an earlier level, a miniature votive vessel was found that is identical to thousands found at Atheniou on Cyprus. Four bovine shoulder blades or scapulae with incisions along their edges are similar to scapulae found in large numbers in both Kition and Enkomi in Cyprus; they were probably used for oracular purposes or for musical instruments (Dothan 1995: 48).

Even more basic evidence for the Aegean connections of the new population has been found in the kitchen – in their kitchenware and dietary preferences.[43] Because kitchenware has only a practical household role and is made and used mostly by women, the forms of kitchenware learned in childhood tend to be maintained and passed on, not changed with fashion, as was the case with elite tableware and drinking ware. Thus it provides an ethnic indicator, not subject to the "pots do not equal people" objection (Bunimovitz and Yasur-Landau 1996; Lipinski 2006: 50; Birney 2008). Most of the kitchenware of the Philistine settlement consisted of Aegean-type cooking pots that are quite different from Canaanite cooking ware (Killebrew 2000: 242; 1998b 397; Dothan and Zukerman 2004: 28–31).

The early theories that the Philistine settlements were established by Sea Peoples from the general Aegean/Anatolian area, are now considered to have been borne out by overwhelming archaeological evidence (Killebrew 1998a; 1998b; Karageorghis 2000; Birney 2007: 45). Their choice of five different settlement sites, however, some very close together (Ekron and Gath), possibly reflects their different origins (Maeir and Uziel 2007: 37). Their eventual construction of large, well-organized and planned cities, the introduction of central hearths, the use of Aegean-type loom weights, cult figures, bathtubs, food preferences, and cooking wares favors their origin in this area. Birney holds that those who explain the cultural elements in the southern Levant as the result of trading activity (Sherratt 1998, 1999, and numerous other articles; Bauer 1998), have relied too much on pottery alone and ignored the overwhelming other evidence for an intrusive culture (Birney 2007: 47).

The Shikila and Sherdana

In contrast to the Philistine Pentapolis, two other settlements of Sea Peoples were made in the area north of the Philistine settlements, Tel Dor by the Shikila and Akko by the Sherdana. These settlements lacked most of these characteristic "Aegean" features, but they attest the existence of strong connections with Cyprus.

Tel Dor

Tel Dor was settled by the Shikila, who also appear in the texts from Ugarit as the people "living on boats." The site of Tel Dor, midway between Philistia and Phoenicia, lies

between two natural anchorages, a vital factor in the period before the construction of artificial harbors. With access to inland routes as well, It served as a transit point for traffic moving along the coast, and thus it has provided information about foreign contacts and their influences on its culture (mainly pottery). Tel Dor is one of the longest continuous excavations in the Levant, providing a continuous sequence of culture development from the Shikila occupation to the beginning of Phoenician culture (Stern 1985; 1990; 1991; 1993a; 1994; Gilboa 1989; 1998; 1999b; Gilboa and Sharon 2001; 2008).[44] Moreover, the extensive use of radiocarbon dating as a major chronological tool in the excavation has provided dates that support the Low Chronology (see Chapter 9).

Little is known about the Late Bronze Age (Canaanite) occupation of Tel Dor, although the site was inhabited at least from the first half of the second millennium BC. Its fate during the crisis at the end of the Late Bronze Age is not clear – evidence from one section suggests a violent destruction, while in another there is evidence for continuity of function. After this possible gap, in the early Iron Age the town spread to occupy most of the tell (about 8 ha). The most complete architectural unit is a "Canaanite courtyard house," well known in Bronze Age Canaan and Syria but found infrequently in the early Iron Age (Gilboa and Sharon 2008: 154–5). Some of the rooms were used for recycling of bronze, indicating functional continuity with the Late Bronze Age; after a generation or some, the function of the house changed, with most of the ground-floor rooms devoted to petty industries and large-scale storage. Food preparation took place in the central courtyard, and dozens of fish skeletons in one of the rooms attest to one element in the diet. In the "west wing" of the building pottery vessels for serving and consuming food and drink were found, some highly decorated, as well as items of personal adornment that had probably fallen from the upper floor. Other similar houses were excavated, and lentils and chick peas were found in large containers suggesting a balanced diet.

In Iron Age I (1150–1050 BC), while most sites in Philistia were undergoing a so-called dark age, with the loss of urban lifestyles and a lack of external contacts, Dor was exceptional in experiencing an urban expansion, with the building of fortifications and large public building, and interregional contacts (Gilboa and Sharon 2008: 160). While Cypriot imports are rare, Cypriot influence on the local pottery is marked, and there is evidence for extensive production of Cypriot-style pithoi and simple skyphoi, mostly small commercial containers, possibly brought by Cypriots resident at Dor. Trade continued with Egypt, as evidenced by finds of dozens of fragments of Egyptian storage jars, and several complete jars, in numbers unparalleled at any other site in the Levant. In Iron IB, Cypriot pottery imports increased, and many, even most, of the Phoenician vessels found on Cyprus were produced at Dor (Gilboa and Sharon 2008: 163), while there was a fall-off in Egyptian imports. Contacts with the west appear for the first time in the transition to Iron II with the arrival of pottery from Euboea, the earliest Greek pottery found in the Levant (p.163). All this supports a picture of Dor as a bustling international harbor, as it is portrayed in the *Lament of Wenamun*, although the historical value of that document is in debate (see Chapter 9).

The discovery of the settlement of Dor by the Shekelesh Sea People at first led to the expectation that evidence for the arrival of a large group of migrants bringing Aegean elements would be found there, as they have been at Philistine sites, but that was not the

case: there is no evidence for a mass migration, conquest, or a major change of culture in Dor (pp. 159–60).

Akko

Another group of Sea Peoples, the Sherdana, established themselves on the Carmel coast at the port site of Akko (Dothan 1988: 297–303; Stern 2000: 204).[45] Their presence is evidenced by the intrusive building on top of the old ramparts of a silo, granaries, workshops, and pottery kilns, and finds of Mycenaean IIIC: 1b pottery (M. Dothan 1989: 60; see also M. Dothan 1986; 1988 (deals specifically with artisans' workshops); 1993; and Stern 2000). Stern (2000: 204) sees this as the arrival of newcomers, as in the case of the Peleset/Philistine settlements, but Sherdana are attested in the area earlier: in the fourteenth century they appeared as pirates in the Amarna Letters, and they turned up again later as well, fighting now for, now against, the Egyptians.[46] Moshe Dothan suggests that the occupation occurred in the troubled time at the end of the Nineteenth Dynasty and that it may have been a peaceful settlement, accepted by the Egyptians. Some Canaanite habitation continued, as did the traditional crafts of metalworking and the production of purple dye (as attested by several floors made of crushed murex shells and the find of a heavy-walled vessel containing crushed shells) (M. Dothan 1989: 61). That, unlike the Philistines, the Sherdana were seafaring is suggested by their choice of an excellent port site as well as by an altar that bore incised drawings of boats similar to ship graffiti found at Kition on Cyprus (see Chapter 7). The splendid harbor led to its being central to exchange networks to the Aegean, Cyprus, and the Egyptian Delta.

Handmade Burnished Ware ("Barbarian Ware")

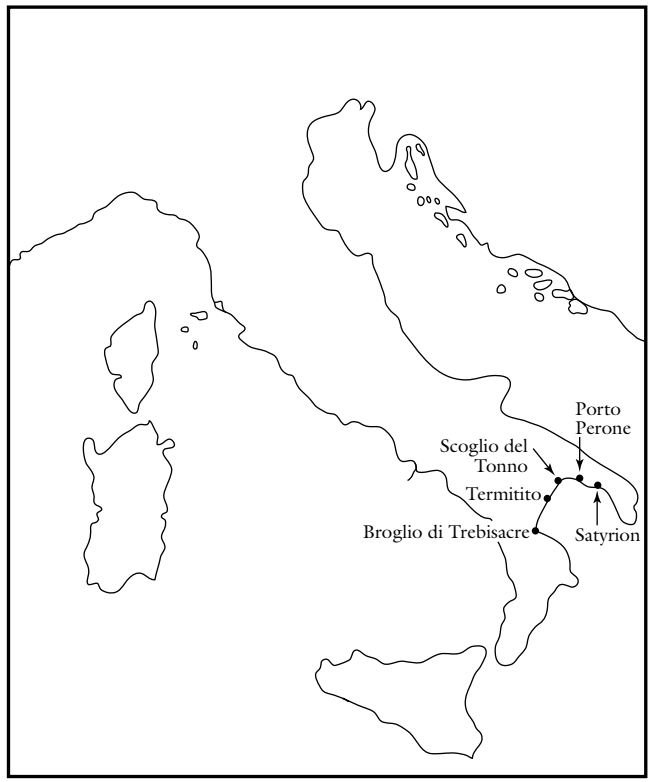
At this time, another new pottery type, Handmade Burnished Ware, that appeared in small amounts and at widely scattered locations offers clues as to the origins of the wandering Sea Peoples. A coarse handmade dark pottery with no local antecedents, it occurred most often in the form of cooking ware, but it was also used for plates and cups, and for storage jars. For the most part, it was locally made, with local variations (Deger-Jalkotzy 1977; 1983; Pilides 1991; 1994; Badre 2003; 2005: 35–6; 2006: 89–93; Kilian and Mühlenbruch 2007; Kramer-Hajos 2009 (review of Kilian and Mühlenbruch, with full bibliography of earlier work)).

As an intrusive element, Handmade Burnished Ware was first attributed to the infamous, and now discounted, Dorian invaders from the north, and thus it was called "Barbarian Ware." These Dorians having faded from the picture (see Drews 1993: 63–4; Deger-Jalkotzy 1977), two main lines of argument about the origins of this ware are now current. The first is that it was indigenous, made by people under economic pressures,[47] The indigenous hypothesis does not, however, explain the fact that wheel-made Mycenaean wares continued to be produced in the same areas where Handmade Burnished Ware was found, nor can it explain its appearance at Troy and Cyprus (Pilides 1994). Thus, most now see the ware as providing evidence for the presence of small groups of foreigners, either slaves (Bankoff, Meyer, and Stefanovich 1996) or a mixed group of traders, "guest workers," mercenaries, and some slaves of northern origin (but not slaves alone) (Genz 1997).[48]

The distribution of Handmade Burnished Ware is roughly from the west or northwest (Italy south of the Alps), to the east and southeast. Most recently, the earlier emphasis on the Balkans as a possible origin for this pottery has shifted to its western Italian connections, as suggested by Hallager (1983; 1985: 303; see too Watrous 1989: 76; Jung 2006: 32–9).[49] Of the extensive evidence for Handmade Burnished Ware associations with Italy, only a few brief references must suffice here: two complete (restored) vessels of Handmade Burnished Ware were found in a late-IIIB–early-IIIC context at Khania – a jar and a carinated bowl (Hallager 1985: 303). The carinated bowl has Italian parallels at Scoglio, Porto Perone, Satyrion, Broglio di Trebisacce, and Termitito, and an almost identical bowl was found at Lefkandi (Popham and Milburn 1971: 338, Fig. 3.7 and n. 8). Italian Handmade Burnished Ware was also found in association with a large amount of Italian plain wheel-made gray ware, which Hallager interprets as having been made by Italians who adapted their handmade pottery to production on the wheel (Hallager 1985: 303; Jung 2006: 47–51). Italian gray ware occurs, together with Handmade Burnished Ware, in Crete at Kommos I (Watrous 1989: 76), Knossos, Tylkissos, and Ayia Pelagia (Hallager 1985: 303), As a result of such finds, Kilian came to see Handmade Burnished Ware as the product of a foreign population who came from a number of different locations, but mainly from southern Italy (Kilian and Mühlenbruch, 2007: 54–5, 58, 75, 80),[50] craftsmen who traveled as "guest workers," unattached to the palatial or elite sphere.

From Italy, Handmade Burnished Ware traveled to Crete, where it was found at the ports of Khania (Hallager 1985: 303), and Kommos I (Handmade Burnished Ware also reached Greece Watrous 1989: 76). There it was found at numerous sites, most notably at Tiryns (Kilian and Mühlenbruch 2007),[51] but also at the Menelaion near Sparta (Catling and Catling 1981), at Korakou (Rutter 1975), Aigeira (Deger-Jalkotzy 1977), Mycenae (D. French 1969), Lefkandi (Hallager 1985: 303; Popham and Milburn 1971: 338, Fig. 3.7 and n. 8); a vase of Italian character, as attested by Vagnetti (1969 108–9), and, most recently, Thebes (Andrikou 2006: 53–4).[52] But the trail did not end there. Handmade Burnished Ware was also found in Troy (Bloedow 1985) and at numerous sites on Cyprus (Pilides 1991, 1994), where the greatest amounts were found at Kition and smaller amounts at Maa, Hala Sultan Tekke, and Enkomi, with a single piece found at Sinda. In Cyprus it appeared at a time when large quantities of Mycenaean IIIC: 1b were in use, with the earliest appearing at the beginning of LC IIIA, supporting the suggestion that the makers of Handmade Burnished Ware followed along with people from the Aegean seeking refuge on the island (Pilides 1991, 1994).

From Cyprus, Handmade Burnished Ware continued its spread along the Levantine coast, although sporadically. It has not been found at the northern sites of Ugarit (destroyed by the Sea Peoples), Ras el Bassit, Ras Ibn Hani, Minet el-Beida, or Tell Tweini (Vansteenhuyse 2010).[53] A single piece was found at Beirut (Badre 1998), which is closely comparable to contemporary ceramics from Sicily or the Aeolian Islands, but not consistent with the geology of the Beirut area or the north Levantine coast (Mazar 1985: 43–5; Boileau *et al.* 2010: 1684). It was found in large amounts at Tell Kazel (Syria) (Badre 2003: 89–94; 2005: 33–6; 2006: 92–3), probably ancient Sumur/Simyra in the Amurru). That site was located on the coast in a crucial point for



Map 8.3 Italian Sites with connections with Handmade Burnished Ware. Adapted from Hallager (1985: 294).

trade with the interior, the main passage leading to inland Syria, through the break in the mountain chains of Mt Lebanon and Jabal al Ansariyeh. Tell Kazel had an extensive habitation quarter and a temple complex at the end of the thirteenth century BC, which was destroyed and rebuilt in the twelfth century BC. It was finally destroyed, along with other coastal sites, in the early or mid-part of the twelfth century (Boilea *et al.* 2010: 1679), possibly by the Sea Peoples. Farther south, Handmade Burnished Ware was not found in the Philistine Pentapolis, but in the later phase of Sea People settlement four pieces were found at Tell Qasile (Mazar 1985: 43–5).

Associations of Handmade Burnished Ware with the Sea Peoples have also been growing. One reason for this is that, along the Levantine coast, it has often – but certainly not uniformly – been found at places that saw destruction attributed to the Sea People.[54] Moreover, its distribution pattern has been compared with the "cruising radius of western pirates and intruders" (Boileau *et al.* 2010: 1678).

In a sense, not much has changed – the intruders, once seen as Dorians, are now identified as Sea Peoples. However, views on their origins have shifted. Most no longer see them as coming from the Balkans, but from various locations along the Mediterranean coasts. They were perhaps wandering craftsmen, whose specialization – whatever it may have been – did not allow them time to make elegant pottery.[55]

Trade after the destruction of Ugarit

Whatever their original source, the attackers and the settlements they made at the end of the second millennium changed the trading patterns in the eastern Mediterranean. In the southern Levant, trade seems to have been broken off completely. The absence of evidence for long-distance trade during the time of the Philistine settlement clearly refutes Sherratt's hypothesis that the settlers there came as traders, not migrants (Sherratt 1992, 316–47; Sherratt and Sherratt 1991: 373–5; Sherratt 1998: 292–313; Bauer 1998; contra: Barako 1999; Lipinski 2006: 49). In contrast, however, in the new settlements of Dor and Akko in the northern Levant, overseas contacts continued, and in the Canaanite/Phoenician city-states of Byblos, Tyre, and Sidon trading activities also seem to have continued with little interruption, although overbuilding has left little archaeological evidence for the period.[56] The role of these cities in trade was, however, altered radically with the destruction of Ugarit, which opened the way for their greater participation in maritime trade. Rather than the valuable royal cargoes of the Late Bronze Age, sent on official missions, ships now often seem to have been operating on behalf of their merchant owners, who now often had their own considerable resources, with only an occasional royal commission. Nor did a royal commission guarantee assistance in their ventures, as illustrated by the difficulties encountered by Wenamun. An example of the type of cargo such ships carried can probably be seen in the contents of the Point Iria wreck: large transport vessels – Cypriot pithoi, LH/LM IIIB 2 pithoid jars – and medium-sized Cretan stirrup-jars, Cypriot jugs, and an amphora with incised linear signs; and a few decorated Mycenaean vases in fine ware. Various small pots, like the cooking pots and juglet, may have belonged to the crew. Artzy sees the principals in these transactions as a mixture of Canaanite and Syrian merchants, Cypriot, Aegean and coastal Anatolian mariners, "representatives of the system economies and fringe mariners – 'Nomads of the Sea' of various origins."

It was Cyprus that most immediately inherited the role of Ugarit as the leader in this long-distance maritime trading in the Mediterranean, a part of which can be seen in the numerous connections between the island and the settlements of Dor and Akko. It was also during this transitional period that iron began to be used as a working metal, rather than being valued simply as a rare curiosity.[57] While the earliest attested use of iron occurred in Anatolia (Wertime 1980: 2; Muhly 1980: 26), its first extensive exploitation is attested on Cyprus (Osborne 1996: 113; Lemos 2002: 101–3; Dickinson 2006: 146–7; Knapp 2008: 367). At Kourion, fragmentary pieces of iron knives have been found in as early as the thirteenth century in burials (Benson 1972: Tombs 16 and 17a; both LC IIIB), and two iron knives with evidence of carburization, one with evidence of quenching, were found at Idalion, dating to late LC IIIB (1150–1050 BC) (Tholander 1971; Kassianidou 1994: 74).

Why Cyprus? Evidence shows that iron was produced on Cyprus, at first adventitiously, as a by-product of copper production (Gale *et al.* 1990; Charles 1980; Pickles and Peltenburg 1998; contra Kassianidou 1994):[58]

> as the Bronze Age developed, the effort to obtain better copper smelting led to improved furnace operation. More efficient use of fluxes and greater control of combustion and heat conservation meant that there was an increased incidence of metallic iron occurring in the

> spent charge material and associated with the solidified copper. Eventually there developed an upsurge of interest in iron for its own sake. Such an interest would be associated with the level of development reflected in the change from copper to copper-base alloys, and their purposeful selection for specific properties (Charles 1980: 167).

The small iron knives with bronze rivets and ivory or bone handles produced in Cyprus would have been cheap to produce if iron blooms from copper were employed in this way. According to Sherratt, they were exploited by the Cypriots as another profitable export in their value-added business in copies of Mycenaean pottery (Sherratt 2000b; 1994a).[59]

It is significant that the earliest piece of worked iron from the central Mediterranean was found together with a piece of Late Cypriot White Slip II ware at the Nuraghe Antigori at Sarrok in Sardinia (Ridgway 2006a: 302, site still unpublished; Vagnetti and Lo Schiavo 1989: 227; Vagnetti 2001: 78). Had the Cypriots wanted to extend their speciality production of iron knives, Sardinia, rich in iron ores, offered a good place to do it. And future sources were assured in the rich iron resources of the Colline Metallifere of central Italy, to which the Sardinians soon turned their attention (Lo Schiavo, MacNamara and Vagnetti 1985; Bartoloni 1991: 113; Lo Schiavo 1994). Both as a source of iron, and as an entry point to the riches of the far west, the resources of Sardinia presaged the future: the coming of the Age of Iron and the quickening of long-distance maritime traffic across the Mediterranean.

Notes

1 KUB 3:34 = Keilschrifturkunden aus Boghazköi 3; Singer (1983: 5).
2 The Great Karnak Inscription, Breasted (1927: vol. 3, no. 580, l. 24).
3 RS 20.212 and RS 26.158; Nougayrol, Ugaritica V (1968: 33: 105–7 and 171: 323–4); Singer (1983: 5).
4 http://www.uni-tuebingen.de/emar/en/index.html (accessed March 15, 2011).
5 A growth anomaly in 1159 BC, noted at the Anatolian site of Yassi-höyük/Gordion, and associated with the eruption of the volcano Hekla 3 in Iceland (Kuniholm 1990).
6 This is a fragmentary copy of the Merneptah Stele that was found at Karnak, see note 2; Sandars (1985: 105–12; pl.62); Pritchard (1974: 376–8).
7 Maps in this web site trace the expansion, and then retraction, of the kingdom: http://hittites.info/history.aspx?text=history%2fMiddle + Empire.htm (accessed March 15, 2011).
8 Dickinson still maintains that Carpenter's theory of drought should be rejected for Greece.
9 Discovered in 2007, a stone passage under the Mycenaean citadel of Midea, dating to the mid-thirteenth century, probably led to a nearby water source; at the entrance to the passage, archaeologists found quantities of broken clay water jars and cups. http://www.freerepublic.com/focus/f-chat/1886860/posts (accessed March 15, 2011).
10 http://www.bbc.co.uk/science/horizon/2003/earthquakestorms.shtml (accessed March 15, 2011).
11 Evidence for earthquake destruction has also been seen at Troy VIh and other cities in Anatolia, including Hattusa.
12 On the archaeological signs of earthquakes, see Stiros (1996).
13 While some buildings were not damaged, differences in construction (which are noted) and variations in the ground upon which the buildings were built can affect survival, Stiros (1996).

14 Tiryns: Kilian 1988: 134–5; 1996. For discussion of views on the cause of the destructions, see Rutter (2008: Lesson 28).
15 There is no other evidence suggesting that either Greece or the islands were unusually subject to such attacks.
16 On the religious role of the king in Ugarit, see Wyatt (2007).
17 A good overview is provided by Yon (2006).
18 Letter RS 34.129, Malbran-Labat (1991: 38–9); Yon (1992: 116); Caubet (2000: 43–7).
19 The Great Karnak Inscription, Breasted (1927: vol. 3, nos 574–92).
20 On these various groups, see the web site of Anne Killebrew and her students: http://www.phoenician.org/sea_peoples.htm (accessed May 27, 2011).
21 A suggestion made by in 1985 by Wood (Chapter 7).
22 A position now accepted by Yasur-Landau (2010: 192). Handmade Burnished Ware pottery (Barbarian Ware), see Pilides (1994; 1991).
23 In the Telepinu Proclamation, Bryce (1983: 131–61, 147).
24 The "Lady with the Lily," fresco fragments from the southwestern quarter of Mycenae, a possible cult center; no fresco remains have been found in megara or domestic quarters; see discussion in Maran (2006: 127–8 and associated notes).
25 Corpus of Late Bronze Age Imports from the Near East and Egypt, nos 23–30.
26 Actually, there is no direct evidence for a palace at Athens; only a column base and some steps similar to the west staircase at Mycenae and other palaces suggest it (Lemos 2006: 506, with references).
27 Similar Sea People sites are suggested by Karageorghis (2001) as Dymaion Teichos in the Peloponnesus, Koukounaries on Paros, Ayios Andreos on Siphnos, two fortified acropoleis on Salamis (the excavator, however, sees these two as settlements of local people).
28 Rooms 49 and 54A, Karageorghis and Demas (1988: 61, 91).
29 But these were known in Cyprus before the crisis, see Collard (2008).
30 A fragment of a large LM III stirrup-jar with a Cypro-Minoan sign incised after firing on the handle; fragments of four "Canaanite" jars, including three with signs of Cypro-Minoan script incised after firing (Masson and Masson 1984: 137, 139, ii 2); a Mycenaean IIIB chariot crater, with painted Cypro-Minoan sign on base (p. 12, and app. I).
31 A summary of the history of the Cypriot Late Bronze Age incorporating the scenario is presented in Karageorghis (1982); see, too, Catling (1975, esp. 207–8); Merrillees (1977, esp. 42).
32 Nicolaou sees the presence of Cretan artifacts as representing not a population movement, but simply trade; for a brief discussion, see Jones (2000: 144–5).
33 Bikai suggests that the Phoenicians may have provided a temporary base for the intruders, or even been in league with them; the inhabitants of Ugarit did not consider themselves Canaanites (Tubb 1998: 16).
34 Stern limits the period of absence of trade to ca. 1150-1050, after which there was a renewal of Cypriot imports to Dor, as well as the appearance of the first Phoenician Bichrome ware.
35 Birney sees people arriving from, or traveling through, Cyprus; contra Caubet (1992: 124).
36 An Iron Age II cemetery (ca. 850–550 BC) has been discovered (Aubet 2004), previously it was thought to be a possible Iron Age Tophet cemetery (Seeden 1991).
37 Tell el'Ajjul/Gaza was excavated by Petrie in the 1930s; excavations were resumed in 1999; according to the web site, seven major sites in Gaza have been excavated by the Palestinian Antiquities Authority since 1994, but in late 2000 activity stalled with the rise of the intifada. http://www.theartnewspaper.com/article.asp?id=16827 (accessed November 10, 2010).
38 Tell es-Safi/Gath is being excavated by Bar Ilan University; Maeir (2003); Maeir and Ehrlich (2001); Garfinkel (2007: 19); www.gath.wordpress.com (accessed March 15, 2011).

39 Dates from A. Mazar (1992: 30, 242).
40 The date of the settlement of the Philistines in southern Canaan is in dispute, with a high, middle and low chronology all having their proponents (see Finkelstein 2000).
41 For an explanation of the development and use of these terms, see Dothan and Zuckermann (2004); the term "Mycenaean style" has been adopted by Birney (2007); and Killebrew (2008) notes that the preferred term is "Mycenaean IIIC Early and Middle I." Åström created still another term, "White Painted Wheelmade III," that included this pottery, and this is the term currently preferred by Cypriot archaeologists; however, the term Mycenaean IIIC:1b has become customary in reference to early Philistine pottery, and therefore is the term adopted in this work. A later development, Philistine Bichrome, that has Mycenaean, Canaanite, and Egyptian features and is characterized by stylized bird and fish motifs in red and black, appears in the archaeological record about 40 years after the initial settlement, leading to the use of still another term for Mycenaean IIIC:1b – Monochrome.
42 The central hearth is especially well documented as IndoEuropean/Greek by Palaima in Rehak (1995). See also Dever (1989).
43 Remains of animal bones also confirm a change in diet, with pork and beef replacing the goat and mutton favored by the Canaanites as the main sources of animal protein. Animal remains found in the excavation of Ashkelon confirm the evidence at Ekron, indicating that the Philistines introduced a new dietary resource, pork: 23 percent of the bone samples were porcine, though pigs were rarely if ever used by the Canaanites (Dothan 1990, 1995: 48; Hesse 1986; Killebrew 1998b).
44 Excavated from 1980 to 2000 by Ephraim Stern, and from 2003 by a consortium including several veterans of Stern's excavations.
45 The list of cities on the coast in the Onomasticon of Amenope (ca. 1000 BC) provides an identification for the newcomers as the Sherdana. The site has not yet received a final publication, but a current research project has been proposed to the Shelby White – Leon Levy Program for Archaeological Publication by Aaron J. Brody: http://www.fas.harvard.edu/~semitic/wl/digsites/Levant_coastal/Akko_97 (accessed November 5, 2009).
46 Whether they had any connection with the island of Sardinia, either before their appearance in the Near East or after, remains a matter of speculation (see M. Dothan 1986; Vagnetti 2000: 319–20).
47 Walberg (1976: 186–7) suggested that it was a local product that resulted from the breakdown of society in Greece; Sandars (1985: 192) invoked the Mycenaean housewife thrown back on her own resources.
48 Although Small (1990, 1997) has continued the argument that it was an indigenous product.
49 Still looking to the Balkans, however, are Bankoff, Meyer, and Stefanovich. (1996), but see Jung (2006: 24–31).
50 "Four vessels imported from southern Italy, and up to 82% of the locally made HMBW shows possible parallels with south Italian vessels" (p. 54).
51 A useful summary of recent bibliography on the subject can be found in Kramer-Hajos (2009).
52 "Nine examples of Handmade Burnished ware among the Pelopidou street assemblage (Deposits 1c, 1b)," in houses built in LH IIIC Early (the third building phase), "proves for the first time their local production in Thebes."
53 Handmade Burnished Ware is distinct from *céramique à stéatite*, different handmade pottery, with talc temper, found in the Jebleh region and also at Tell Tweini; no clear indications of Handmade Burnished Ware have been found north of Tell Kazel along the coast, and none at Tell Tweini.
54 A connection with the Sea Peoples was suggested by Schachermeyr (1980: chs 4 and 5, Fig. 13, Plate 4), but he maintained that the makers of Handmade Burnished Ware were neither

the Philistines nor Cretans; a possible relationship to Sea Peoples was discussed in1983 by Deger-Jalkotzy; Sandars (1985: 191–5), however, saw little connection between this handmade pottery and the Sea Peoples, looking instead to Thrace for its origin.

55 Watrous (1989: 76) suggested that the impasto jars found at Kommos may have originally been used as containers to ship bronze scrap from Italy; there are a few other finds that suggest that Handmade Burnished Ware was somehow connected with metallurgy, but its occurrence in a finer version, and as tableware, argue against this, Pilides (1994: 109).

56 This is a disputed interpretation: Gilboa (2005: 49–52), sees no destruction in the Canaanite/Phoenician settlements; Stieglitz (1990: 10); and Aubet (1993: 21) see destruction but quick revival.

57 Stage 2 in Snodgrass's three stages in the development of the metal which have become widely accepted (Snodgrass 1980b: 336–7):

Stage 1: iron (mostly meteoric) was considered to be a precious material and was used as for ornamental purposes
Stage 2: iron was used for implements of practical use, but less frequently than bronze
Stage 3: iron predominated as a working metal but did not displace bronze.

58 Kassianidou allowed that iron compounds added as fluxes for working copper may have been reduced accidentally to metallic iron, but that adventitious production was too uncertain to be a dependable source.

59 An idea favorably received by Muhly (1996).

Chapter 9

Recovery and Expansion (1050–850 BC)

Maritime Conditions after the Collapse

Trade conditions and patterns in the eastern Mediterranean changed dramatically at the end of the Late Bronze Age. Cyprus inherited the maritime connections of Ugarit, although these were now greatly diminished. The other Levantine ports – Byblos, Beirut, Sidon, Tyre, Sarepta – while they seem to have survived (some suggest by assistance to the attackers), suffered various degrees of damage, and all were greatly hampered by continuing unrest at sea (see Chapter 8).

Evidence for some continuity in the maritime situation is often drawn from the Egyptian text called the "Report (or Lament) of Wenamun." This text ostensibly confirms not only the decline of Egyptian power, but also the continuing existence of the ports of Byblos, with 20 ships; of Sidon, with 50 ships; and of Dor and Tyre. Moreover, it suggests that this continuity in trade went back at least three generations, since Wenamun's grandfather is said to have been among the traders (Markoe 2000; Aubet 2001: 111–43; Knapp 1988a: 239–40; Mazar 1992: 305–6). While the story portrays a good deal of piracy and a general atmosphere of maritime disorder, it also suggests the survival of some elements of the Late Bronze Age "law of the sea," which were at least appealed to, if not respected by all (Wachsmann 1998).[1]

Unfortunately, however, the historical weight of the Wenamun account is not great. Study of the story has led most scholars to conclude that it was not an official report but a literary piece composed some time after its ostensible date, and that it could have had various literary or polemic aims.[2] For example, the final scene, in which Wenamun is rescued from death on his arrival at Alashiya (Cyprus) by its female ruler who invites him to spend the night, is more reminiscent of Odysseus's adventures than of an official's report and shows that it is more a "tale" than the official document it purports to be. Eyre read the story as a dissident historical romance in which the king and his dynasty are dismissed contemptuously as merely human, and as "a polemic justification of the political independence of the Theban regime and the priesthood of Amon at that time"

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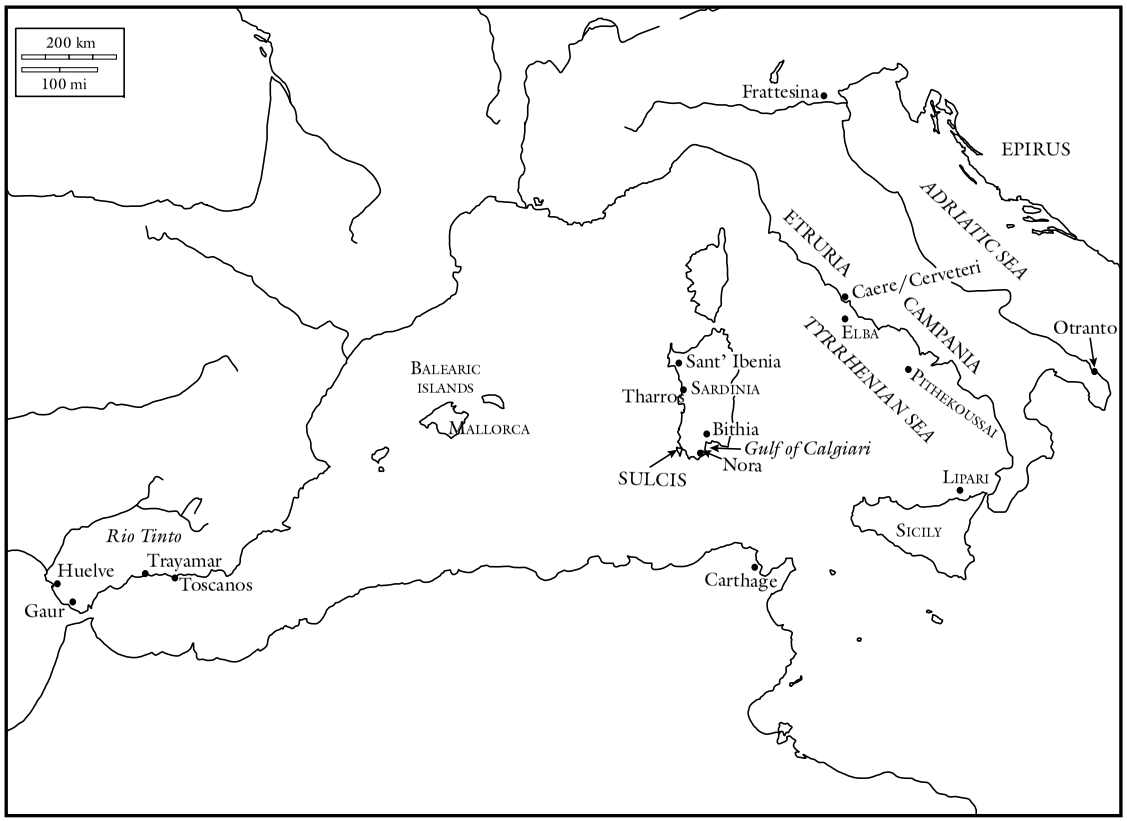
(1996: 432). On the other hand, Baines (1999: 230) saw in it a more religious message: to show that human beings cannot serve Amon as befits him. Thus it would seem that the piece has limited historical value, although it is widely used as evidence for the period (Wachsmann 1998: ch. 16; de Spens 1998). Sass (2002) specifically identified the date of the text as the reign of Shoshenq I (945–924 BC), but noted that, "given the relatively static conditions of the time, even an early Twenty-second Dynasty story might paint a plausible picture of Egypt and the Levant at the time of the late Twentieth Dynasty."

Very Early Phoenician Overseas Settlements?

The ferment that accompanied the fall of the palaces is probably reflected in the traditional written reports that credit the Phoenicians with very early exploratory voyages to the far west, and a number of attempted, or even actual, settlements. Thus, according to ancient literary sources, Phoenicians founded Gadir/Cadiz some 80 years after the fall of Troy (1110 or 1104 BC),[3] making it the earliest Phoenician settlement in the west. While this second-century date has, until recently, been questioned as not supported by archaeological evidence, the discovery of accumulated sediments from the Rio Tinto mines in Huelva in the harbor of Sidon has now moved Phoenician activity in Iberia back in time (Leroux, Véron, and Morhange 2003; Doumet-Serhal *et al.* 2008: 41). Lead isotope provenance studies of these sediments have identified their source and dated them to the Late Bronze Age, providing new data on ancient metallurgical activities.[4] The results stress the dependence of the Phoenician metal industry on ore imported from the Andalusian mines at that time (Doumet-Serhal *et al.* 2008: 41, citing Leroux, Véron and Morhange 2003: 117), which makes more credible an early foundation date for Gadir (1104/03 BC).[5]

The earliest archaeologically attested Phoenician settlement in the far west is now Huelva in Andalusia, where excavations have provided conclusive evidence, in Phoenician, Greek, and Cypriot pottery, for the existence of a Phoenician emporium already by 900 BC (González de Canales, Serrano, and Llompart 2006). The attraction of the site was its access to the copper, iron, and especially silver of the Rio Tinto mines, which Huelva produced on a gigantic scale over the years, to the benefit of Tyre. The settlement was established by workers in a number of crafts: potters; miners, and metallurgists; carpenters who made tools for carving, weaving, ship construction, and wooden tablets for cosmetics and writing; stone workers; and masons. Ivory work was an important craft, as evidenced by 816 finds of ivory cuttings and some finished pieces, as well as a large part of an elephant tusk; attesting the import of ivory to produce finished products for export. The style of ivory work, characterized by waste (off-cuts and unfinished products) points to a workshop tradition of the "Syrian school" of ivory work (González de Canales, Serrano, and Llompart 2006: 26). The settlement was probably agriculturally self-sufficient, with evidence for the cultivation of wine grapes, figs, and grain; and for the raising of cattle, goats, sheep, pigs, horses, dogs, and birds. Hunting added only a little to the diet, but fishing seems to have been an important food source; a fragment of an amphora with fish scales sticking to the interior suggests that preserved fish may also have been prepared and perhaps exported.

The transport of the eastern pottery found in Huelva has been mainly attributed to Euboean enterprise, but there are good reasons to rethink this explanation. In Huelva



Map 9.1 The western Mediterranean.

both Euboean pottery and eastern orientalia have been found in an archaeologically rich Phoenician and indigenous context, and it is unlikely that the Phoenicians would have established such a settlement to be dependent upon Euboean transport. In fact, the presence of Sardinian pottery at Huelva (13 askoi, a bowl, and 15 necks of *vasi a collo*) make a stronger case for Sardinian navigation than Euboean. The most important of the traveling Sardinian pieces is the duck askos found in the Tekke tomb in Crete, suggesting the likelihood that Phoenicians transported Sardinian pottery to both Crete and Huelva (González de Canales, Serrano, and Llompart 2006: 26).

Gadir is another early Phoenician settlement now attested archaeologically, dated to the eighth century BC by finds of "remnants of walls . . . seven metres deep. . . beneath Cadiz's old town centre . . . and shards of Phoenician pottery."[6] The early date of Phoenician settlement is also supported by evidence for their establishment of settlements along the coastal route leading west – Toscanos, Chorreras, Morro de Mezqitilla, Guadalahorce, Adra in Almería, and Sexi on the coast of Granada (Ruiz Mata 2002: 160–1; Aubet 2001: 305–10). This series of settlements has been characterized by Aubet as "one of the most spectacular and ancient archaeological clusters known in the western Mediterranean . . . its discovery has given an unexpected turn to the study of the Phoenicians in the west" (Aubet 1993, 249) Further evidence of the early presence of the Phoenicians is provided by finds of Phoenician imports in indigenous settlements in the interior, dated to 770–760, and most recently, as early as 900 BC (Aubet 2001: 261–2).[7]

Names given to various places on the North African coast in some ancient sources also suggest early explorations in which the Phoenicians were not alone. Cypriots, Syrians, and Greeks (Euboeans) also left traces of their participation by the names they gave to places that they were the first to occupy, even if only ephemerally. Thus early Greek interest in the Carthage area is seen in names such as Pithekoussai in Tunesia (Tabarka) and the nearby island named Euboea; and the islands called Naxian off the north African coast (Boardman 2004: 159; discussed at length, 2006).[8]

These early activities are sometimes called "precolonial" or "proto-colonial," despite the widespread rejection of the term "colonial" as anachronistic for the main period of overseas settlement.[9] Alternative terms such as "experimental" (Moscati, cited by Negbi 1982: 601, n. 5) or "scouting," while probably accurate, do not encompass the establishment of settlements; perhaps the term "pioneer" fits such situations better.[10]

Cypriot Revival as a Trade Center

One of the factors weighing against the historicity of Wenamun's account is the picture it presents of Cyprus as hardly more than a fantasy world imagined from afar. Even though life on the island had been disrupted by the arrival of new refugees from Anatolia and the Aegean, and Cypriot exports to the mainland did decline after the destructions, Phoenician and other Levantine imports in Cyprus expanded considerably, with no break in contact between the island and the mainland (Gilboa 1998; Bikai 1987b). Evidence of such contacts is seen in the early Phoenician pottery found in Salamis Tomb I, after that settlement was relocated from Enkomi (Yon 1971).

What did the Cypriots offer to these trading relationships? Certainly pottery. An influx of Cypriot pottery at Dor occurred in the first half of the tenth century.[11]

Map 9.2 The eastern Mediterranean.

Fourteen Black-on-Red single-handled neck-ridge juglets of Cypriot origin were found in Syria, indicating extensive trade in these vessels (Mathers *et al.* 1983). The decorative scheme of Phoenician bichrome style pottery – most notably, the use of narrow bands enclosing wider ones – indicates Cypriot inspiration, and, Gilboa (Gilboa 199b1999b: 2–9) suggests, may have been developed as a marketing device. It provides ample evidence for the relations between the Phoenician coast and Cyprus in the early Iron Age, and possibly even for the presence of Cypriot potters on the Phoenician mainland (Gilboa 1999b: 9; 1999a; 2001).[12]

Evidence that Cyprus picked up Ugarit's long-distance trade with the southern Levant and the west is seen by Sherratt in the working of silver at Tel Miqne in Philistia – a crucible with traces of silver was found in a huge installation in the lower city near the fortifications (T. Dothan 1990: 28). Sherratt (1994a: 69) suggests that the silver may have been carried to the site by Cypriots from Anatolia, Laurion, or even Sardinia. In return trade, in addition to pots (which may have been important mainly for their

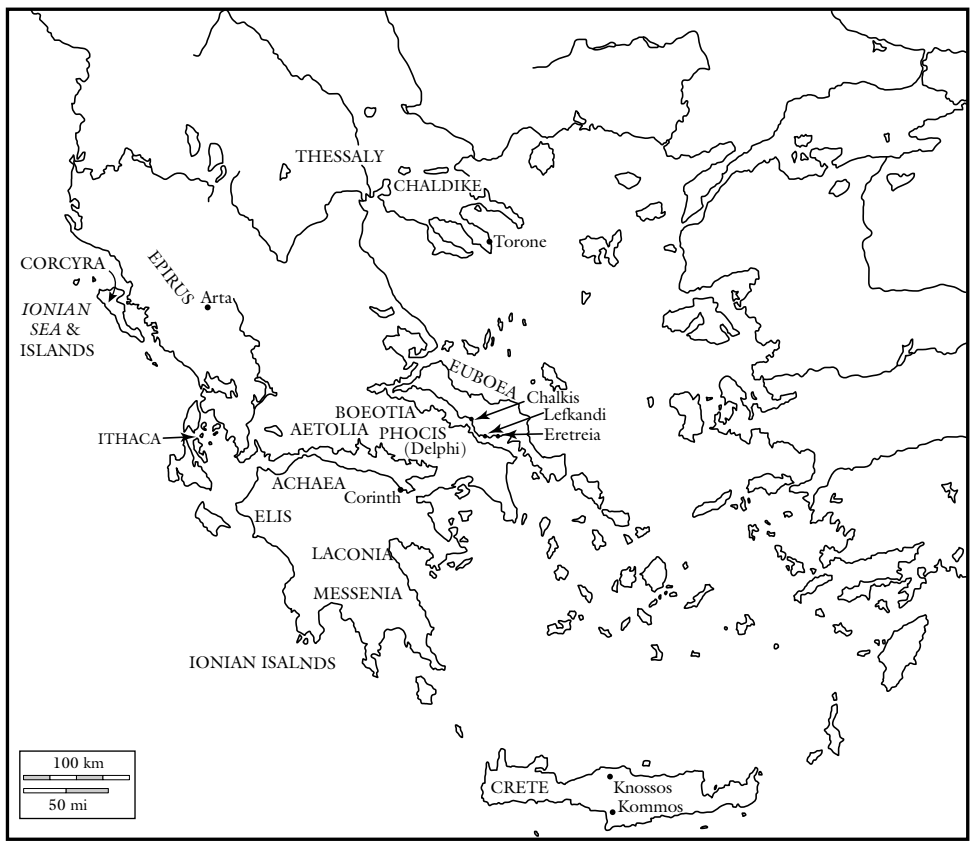
contents), textiles appear to have been exported to Cyprus from Philistia. Large-scale industrial production of textiles is evidenced at Tel Miqne and other sites by finds of large numbers of mass-produced loom weights and evidence for increased stock rearing. The export of textiles to Cyprus is also suggested by the appearance of Levantine textile designs on Cypriot pottery (Sherratt 1994a: 70, citing Schachermeyr). Various orientalia also went from the Levant to Cyprus, some of which were passed along from Egypt.

Cypriot copper also remained in demand, but from the twelfth century BC iron began to figure prominently as a working metal in the Mediterranean, with Cyprus taking the lead in its exploitation (Lorimer 1950: 69,116–17; Desborough 1964: 25–6; 1972a: 271; 1972b: 78, 308, 340–1; Snodgrass 1971: 219, 229–30; 1980a: 340–5; 1982; Boardman 1980: 36; Osborne 1996: 27; Sherratt 1994a; contra, Waldbaum 1982),[13] making use of the iron bloom from copper production, otherwise wasted, to make small iron knives with bronze rivets that became widely popular. Finds at Idalion, such as gossan, slag, and clay and stone vessels and tools, which recall similar objects from Lefkandi, provide evidence for the production of iron objects at that site as early as the eleventh century BC (Koucky and Steinberg 1989: 275).

A sign of this continuing Cypriot vitality can be seen in the foundation of Amathus, on the southern coast at the beginning of the eleventh century (Hermary 1987: 376; Aupert 1997; Steel 2002: 187–90).[14] The site was in a position to control the Kalavassos mines, providing access to copper supplies, and was also well located to serve the east–west maritime route. Ten tombs in the Amathus cemetery dating to the mid-tenth century (Cypriot Geometric IB) provide important evidence for the continuation of trading connections and the growing involvement of the Phoenicians. Amathus was second only to Palaepaphos in the number of Levantine imports found in its burials (Bikai 1987b). Of the Amathus tombs, Tombs 521 and 523 are of particular importance. Tomb 521 contained local pottery typical of the Cypriot Geometric I *koine*, with about 10 percent Levantine imports (Karageorghis and Lo Schiavo 1989a; 1989b), while Tomb 523 contained a high proportion of Levantine imports and numerous copies of Phoenician vessels that provide evidence for more extended westward contacts (Aupert 1997: 23). Of special interest is a large bronze articulated obelos or spit that combined the functions of spit and fire dog; it was clearly a prestige item for use in elite feasting.[15] While simple obeloi as items of prestige are found fairly frequently in burials of warriors and important persons in Cyprus, this complex type is otherwise unknown on the island. A number of similar obeloi have, however, been found in Sardinia (Taramelli 1921: 57–8, fig. 79; Mohen 1977: 37–8, fig. 6) as well as in Sicily and central Italy.[16] The spit attests to even more distant contacts, for it is comparable to examples associated with the "Bronze final atlantique" culture (Mederos Martín 1996: 104; Karageorghis and Lo Schiavo 1989b). Eighteen similar articulated spits have been found in locations along the European Atlantic seaboard (see Mederos Martín 1996: fig.2), providing evidence for trade connections with Iberia and its Atlantic trading sphere (Karageorghis and Lo Schiavo 1989b:16; see also Lo Schiavo 1995: 49–51; Mederos Martín 1996:107–12; Cunliffe 1999). Other evidence for contacts between Cyprus and Spain found in Tomb 523 was provided by a Huelva arc fibula of Iberian type (similar fibulae were also found at Kourion and Kition) (Karageorghis and Lo Schiavo 1989b; Mederos Martín 1996: 98–9 and table 3; Almagro-Gorbea 2001).

As these finds suggest, the new city of Amathus served the Cypriot route west. A further Cypriot expansion in this direction was its establishment of contacts with the Euboean settlement of Lefkandi/Xeropolis (Bakhuizen 1976: 45–7),[17] which provided access to the abundant iron sources available on that island. The history of Lefkandi went back to around 2100 BC, although it had recently suffered a mixed fate. First attracting an influx of refugees in about 1200 BC, it was abandoned by the end of the century, only to be re-occupied by a new influx of refugees in the eleventh century, as attested by burial finds (Popham, Sackett, and Themelis 1980: 336–7; Popham, Touloupa, and Sackett 1982; Popham and Lemos 1996; Popham and Lemos 1995). These have revealed a surprisingly prosperous community, which has done much to shake scholarly belief in a miserable Greek Dark Age.

The earliest Cypriot contacts with Lefkandi are attested by the discovery at that site of a Phoenician bichrome jug (dated at the latest to 950 BC), and probably brought from Cyprus. It is thus by far the earliest Cypriot import after the end of the Mycenaean era (Popham, Sackett, and Themelis 1980: 350; a bichrome jug, plate 270). Return traffic is attested by the discovery at Amathus, near the acropolis but without context, of two Euboean Late Protogeometric vases, a high-footed skyphos and a cup, that are called the oldest Greek imports to that island since the end of the Bronze Age



Map 9.3 Greece and the Aegean.

(Popham, Sackett, and Themelis 1979–80: 361, n. 29; Desborough 1957; 1972a: 196: Hermary 1999: 58). In fact, the finds from Lefkandi have led its excavator, Popham, to suggest that links were never entirely broken between mainland Greece and Cyprus:

> I have attempted to show that Greek communications with the East may well never have been entirely broken off and that the continuing link especially with Cyprus may have had its foundation in racial-linguistic bonds going back to the final stages of the Late Bronze Age. Those connections strengthen and become more obvious around 950 to 900 BC, the evidence for which is concentrated at Lefkandi. (1994a: 33)

The attention of Greek historians was especially captured by the discovery at Lefkandi of a spectacular burial made early in the tenth century in a shaft grave (Dickinson 2006: 22). The burial, identified as a Heroon, or cult site of a hero, contained a male warrior whose cremated remains were placed in an antique Cypriot bronze amphora over a hundred years in age, perhaps a family heirloom, accompanied by a richly adorned female inhumation and four horses.[18] The burial site was enclosed within a large apsidal colonnaded building over 45 meters in length, apparently never occupied, which was dismantled and buried under a huge mound or tumulus almost immediately after the burials (see Popham, Calligas, and Sackett 1986; Popham, Touloupa, and Sackett 1982; Lemos 2002: 164–5).[19]

Soon after the hero's burial, a new burial grounds, called the Toumba cemetery, was opened opposite the tumulus (see 1979–80 Popham, Touloupa, and Sackett 1982; Lemos 2002: 164–5). By the second half of the tenth century, Levantine artifacts appear in a number of burials in the Toumba cemetery. While these burials were rich, they suggest the activity of traders, not princes with life-and-death powers. In Tomb 42, over 10,5000 [*sic*] faience beads, as well as beads of glass and rock crystal, and an eye bead of typical Levantine type, were found (Popham, Touloupa, and Sackett 1982a: 237). Also found were imported seals, one from the Lyre-Player Group from North Syria (Boardman and Buchner 1966; Boardman 1990), and ivory and faience objects from a Levantine source (1979–80: 224). But whether the carriers of these small, easily portable, and attractive items were Phoenicians, North Syrians, or Cypriots is not clear.[20] Strong Cypriot influence is, however, attested by the presence in burials of diadems of gold foil, very common in Cyprus in the Late Bronze Age (1979–80: 219), and in new pottery types – a duck vase, a flask, and a *pyxis* (pp. 287, 361, 357, 415 n. 10: duck vase, S 16.1 (plate 254c); pyxis and flask, S Pyre 1a, 1 and 2 (plate 92)). There is no evidence that Phoenicians were settled at the site, but it has been suggested that one grave was that of an Euboean Warrior Trader (Popham and Lemos 1995).[21]

The burial of the Warrior Trader was a cremation of the first half of the ninth century BC, but it had many similarities to the burial of the "Hero" of Lefkandi some 200 years earlier. The remains were placed in a bronze cauldron, and the grave goods included a "killed" iron sword, a spearhead, two iron knives, a bronze grater, 34 tanged iron arrows of a type new at Lefkandi, and a collection of trader's weights in the three standards commonly used in Cypriot and Levantine transactions (Kroll 2008). The pottery included two Phoenician bichrome jugs, fragments of three small Cypriot jugs, two Attic Early Geometric II *oenochoae*, and local Euboean ware: fragments of six pendant-semicircle plates, and two monumental standed craters, one rivaling in size

that found in the much earlier "Heroon" burials. While the identification of the burial as that of a Euboean warrior trader has been criticized as a bit of ethnic overreach (J.K. Papadopoulos 1997b: 192),[22] the grave definitely stands out from the others in the cemetery, not least by its collection of trader's weights. These, added to the finds of orientalia at Lefkandi, dating from 1100–950 BC and reaching a peak from 950 to 750 BC (Lo Schiavo 1995: 49), provide clear evidence for widespread Euboean trading activity no later than the early ninth century (Kroll 2008). Reciprocal trade is also evidenced by imports in the Levant of Euboean pendant semicircular plates, which Coldstream has suggested attest to early market research on the part of the Euboeans, who themselves did not use plates (1994a: 47–8; 1998a; 304–5, fig. 2; 2003: 374).[23]

Whether Euboeans, Cypriots, or Cypro-Phoenicians took the initiative in these exchanges is a matter of dispute. The standard view until recently has been Hellenocentric, maintaining that it was the Euboeans who took the lead, sailing east (Popham, Sackett, and Themelis 1979–80: 356–62; Popham, Touloupa, and Sackett 1982: 247; Popham 1994c; Boardman 1990; Lemos 2002: app. II, esp. n. 5; Dickinson 2006: 212). This view, which the excavators of Lefkandi admit may be partly the result of their pro-Euboean bias (1980: 361), nonetheless finds some support in the evidence for Euboean maritime activity in the north Aegean in what has been called the Euboean *koine*. This trading circuit encompassed Lefkandi, Skyros, Boeotia, east Lokris, Thessaly, and some of the Cycladic islands.[24] Identified first by pottery styles, it also involved a preference for apsidal houses, the use of fibulae rather than pins, and the use of exotic and valuable objects as funerary gifts (chiefly in Lefkandi and Skyros).[25] The hypothesis of Euboean initiative in trade also gains support by the evidence of the weights found in the tomb of the "Warrior Trader," and the continuing and widespread use of the Euboeic standard by traders in the Levant from the Bronze Age until Roman times (Kroll 2008).

Coldstream has been strongest and most resourceful in his arguments for Euboean initiative. To the common explanation for overseas ventures, a search for metals, he has added the desire of some of the Euboean elite for status-enhancing intermarriage with leading families in Tyre (Coldstream 1998c: 356; 2007; similarly Lemos 2002: 216; app. 2). He has also argued for Euboean "market research," in the production of plates for the Levantine market. And he has offered as still another indication of Euboean maritime enterprise the fragmentary ship portrayals on two Euboean pot sherds as being the "only representational motif in the otherwise unadventurous Euboean Sub-Protogeometric style" (Coldstream 2003b: 374).[26]

Others, however, contest Euboean predominance. Papadopoulos argued that the presence of Euboean pottery does not imply the activity of Euboean traders: traders commonly carried the pottery of more than one center, and Euboean pots were almost invariably accompanied by larger numbers of Cypriot pots. J.K. Papadopoulos (1997b) also pointed to the (admitted) Aegean-centric approach of the excavators as a possible source of methodological error. Sherratt argued strongly for Phoenician initiative on the basis of the chronological and spatial distribution of the Greek pottery of the Early Iron Age in the East Mediterranean: it has been found "earliest and in greatest quantities at Tyre and also in Tyrian-dominated localities in the southern Levant," strongly suggesting that its carriage was almost entirely in eastern, and especially Tyrian, hands (Sherratt 2003b: 229–30; Sherratt and Sherratt 1993). She added the evidence of a sign, possibly from the Phoenician alphabet, found inscribed after firing on an

amphora of North Aegean manufacture found at Lefkandi (Catling 1996b), which suggests that it had traveled in the hands of eastern carriers. Courbin (1993), in discussing Protogeometric amphorae found at Bassit (Syria), concluded that these vessels probably held olive oil, a Greek specialty, but in this case as well, he attributes their distribution to Phoenicians.

Despite his repeated advocacy of the Euboeans, Coldstream finally came to the conclusion that it is fruitless to speculate, and suggested that a collaboration between Euboeans and Phoenicians as maritime trading partners was most likely (2003b: 374; 2008; 176).[27] Considering the presence of Phoenicians at the first Euboean settlement in the west at Pithekoussai, and the wide extent of early Phoenician settlement within the Mediterranean, this seems a reasonable position.

Phoenician Expansion into Israel: Solomon and Hiram

The biblical account

In the tenth century BC, according to the biblical account and the traditional High Chronology,[28] the Phoenicians expanded southward by land into Israel, at first taking advantage of a dispute between the Philistines and the Israelites. The problem arose some 40 years after the initial Philistine settlement when the Philistines' decision to expand their territory with a new settlement at Tel Qasile brought them into conflict with the Israelites. The Israelites reacted by choosing a king, Saul, to lead them in a war of liberation. While Saul died a suicide in a lost battle (1 Sam. 31:1–7; II Sam. 1), his successor David ultimately drove the Philistines back to their original Pentapolis (a struggle epitomized in the story of David and Goliath). This vastly extended the territory of the Israelite kingdom, now become the United Monarchy.

The defeat of the Philistines also opened an opportunity for Tyre to expand (Aubet 2001: 85). Its king, Hiram I (971–939 BC) entered into a commercial relationship with the Israelite King Solomon, the son of David. The first stage in their joint ventures was a treaty in which Tyre supplied technology, building materials, technical assistance, and luxury goods in return for food supplies (I Kings 5:11: Solomon's ivory throne was said to be the work of craftsmen from Tyre (I Kings 10:18). This gave Tyre access to routes to the Euphrates, Syria, and Mesopotamia, providing access to new sources of exotic raw materials and outlets for its production of luxury goods. The next stage in Hiram's expansion was a joint undertaking with Solomon to a place called Tarshish to open a new market, with voyages taking place every three years bringing back gold, silver, ivory, apes, and baboons. These treasures suggest that Tarshish should be identified with some site on the Red Sea, Arabia, and/or the Indian Ocean (Aubet 2001, 44–5). On the other hand, a number of scholars prefer Spanish Tartessos (Negbi 1992: 614; Lancel 1995; Niemeyer, see especially 1993: 340; Doumet-Serhal 2008: 41). While the similarity of the names "Tarshish" and "Tartessos" is not strong evidence for this, since the name, meaning "foundry" (Neiman 1965), was used by the Phoenicians for a number of sites of metallurgical activity,[29] there is more persuasive evidence in the findings of accumulated sediments from the Late Bronze Age in the harbor of Sidon, establishing the dependence of the Phoenician metal industry on ore imported from the

Rio Tinto mines in Huelva in Andalusia (Leroux, Véron and Morhange 2003; Doumet-Serhal *et al.* 2008: 41).

The biblical account also attributes monumental construction projects to Hiram and Solomon: in Jerusalem, the building of the Temple; and, in Tyre, multiple projects, including the rebuilding of the harbor, construction of shipyards, joining of the two islands, and the building (or rebuilding) of the royal palace, the market, and temples, including the fabled sanctuary of Melqart with its two great pillars of gold and emerald.

Serious problems are raised, however, by the fact that there is no archaeological evidence whatsoever that such building projects were carried out in the tenth century BC as the High Chronology requires. While such evidence might not be expected at Tyre, where there are few if any early remains, at least the building program at Jerusalem attributed to Solomon and the United Monarchy should have left some trace. But instead of a great empire with monumental buildings, the archaeological evidence presents a picture of the United Monarchy as a small, early state in the highlands around Jerusalem (Finkelstein and Silberman 2001: 123–45; Finkelstein 1996: 185), while the construction of the monumental public works ascribed to the United Monarchy can be dated to the later Omride dynasty (see Finkelstein *et al.* 2007). Recent radiocarbon dating supports this interpretation, giving a date in the first half of the ninth century for Solomon's rule (the Low Chronology) (Sharon, Gilboa, and Boaretto 2008).

Supporters of the Low Chronology argue that the Hebrew Bible was written from the eighth through the sixth centuries BC, at a time when, with the rise of the Assyrian Empire, Palestine became more urban and writing was important to the bureaucracy of Jerusalem, serving as an ideological tool supporting the power of kings. At that time, rulers in Mesopotamia and Egypt were collecting ancient books, and the Judeans following their example, collected traditional stories, lore, and laws, to create the Hebrew Bible. During the great time gap between the tenth/ninth century, the time of Solomon, and the time of the composition of the scriptures, this orally transmitted material had become embellished with wondrous and sometimes fantastic elements (Schniedewind 2004).[30]

The Low Chronology, inasmuch as it calls into question crucial aspects of the biblical account – the building of the temple and the early existence of the United Monarchy – is, not surprisingly, very much in dispute.[31] Many scholars remain fervent proponents of the traditional dating (the High Chronology) (Dever 1990; 1997; 2001; Stager 2001). Even some scholars who are not primarily concerned with biblical history take a conservative approach to the question. As noted above, Gilboa (Gilboa 1999a: 120) follows the High Chronology in his discussion of Cypriot pottery imports at Dor, although noting its disputed nature. Aubet (2001) also, in her account of Phoenician history, puts Phoenician expansion into the context of the biblical stories of the United Monarchy in Israel and the political/commercial compact between Hiram and Solomon.

But, however inconvenient it may be for traditional historians, and despite the dispute that still rages, especially on highly technical issues in the interpretation of the radiocarbon results, the use of radiocarbon dating at this point seems increasingly to favor the Low Chronology (Sharon, Gilboa, and Boaretto 2008). The effects of this dispute extend well beyond the southern Levant to the entire eastern Mediterranean region, including the expansionary policies of Phoenicia in Anatolia and in the west.

For the Greek historian, however, the results may be more comfortable: according to Fantalkin, the Low Chronology fits the well-documented sequences of Aegean Protogeometric and Geometric pottery, providing for the first time a basis for the absolute chronology of the Dark Age in Greece (Fantalkin 2001).[32]

Phoenician expansion: the archaeological view

Archaeological evidence, independent of the biblical account, fortunately does exist for Phoenician territorial expansion southward. Stern suggests that their move in this direction led to a struggle for control of the maritime trade routes, resulting in the Phoenician conquest and razing of Dor, 'Akko, and the other cities of the Sherdana (Stern 1990: 30; Markoe 2000: 29–31; contra Gilboa 2005). A Phoenician presence at these and other sites in the area, including Tell Abu Hawam and Tell Keisan, is well attested archaeologically (Stern 1990: 27; Bikai 1992; Bauer 1998: 155–7). The Phoenicians did not continue farther south, however, which would have infringed upon the original areas of Philistine settlement that still contained a substantial Philistine population; rather, they insinuated themselves into this area by the peaceful means of trade and commerce. Thus, a Phoenician presence, probably traders and craftsmen, can be detected, according to Mazar (1985: 123), in the mixed population of Tel Qasile, established some 40 years after the original Philistine settlement.

In the ninth century, Hiram's successors looked both to their Phoenician neighbors and farther afield for new areas of expansion. Ithobaal I of Tyre (887–856), took control of Sidon, forming a single state with its capital in Tyre and governed by Tyre. Opportunity was provided for expansion northward by the reduction of Egyptian military influence and the formation of the small neo-Hittite and Aramaean dynasties in southern Anatolia and Syria, which provided a protective barrier against Assyrian expansion and were ideal partners as agents of Phoenician commerce. Ithobaal then extended Phoenician influence northward to the North Syrian coast, where he established Botrys (modern Batrun), a foothold in the Gulf of Issus that gave Tyre access to the rich metal deposits in southeast Anatolia.[33] Settlements were made along the River Ceyhan, which joined the internal metal-rich area to the sea. From Cilicia, the merchants traveled to the Amanus Mountains, an important area for the extraction and working of iron. Their presence is attested in the ninth century BC at Sam'al (Zincirli), one of the principal points that tied Gurgum (modern Kahramanmaraş), in Mesopotamia with Cilicia, the Orontes, and the Gulf of Issus.

Numerous inscriptions in these areas using the Phoenician language attest to Phoenician penetration and enduring political impact both on the coast and inland, although there are no signs of Phoenician settlement (Lehmann 2008; Aubet 2001: 49–50; Röllig 1992; Luke 2003: 28). The earliest of these Phoenician inscriptions is that of King Kilamuwa the ruler of Zincirli, capital of the Neo-Hittite kingdom of Sam'al, dated to 825 BC (Swiggers 1983). Also in the second half of the ninth century, a stele in the vicinity of Aleppo was dedicated to the Tyrian god Melqart by the king of Aram, suggesting that there was a Phoenician sanctuary nearby. It implies Phoenician tutelage over the area, although the inscription is in Aramaic (Aubet 2001: 50).

In 1946–7, an inscription in Phoenician, dated to the eighth century BC (Winter 1979), was found at Karatepe, inscribed by Azatiwada, an agent of Awariku, the king of

the Danunians (Que) (Younger 1998; Winter 1979). A related inscription was found in 1997 on a basalt base in the form of his bull-drawn chariot found with a colossal limestone statue of the Storm God near the village of Çineköy (Hawkins 2009: 165–6). The bilingual inscription, in Hieroglyphic Luwian and Phoenician, is very close in style to the Karatepe inscription. It identifies the dedicator as Warika (or Awariku), king of Hiyawa, and as a descendant of MPŠ (the Mopsos of Greek legend who wandered through Pamphylia and Cilicia founding cities), thus confirming the conclusion drawn from the Karatepe inscription that the royal house of Adana (Hiyawa) claimed descent from Muksa-MPŠ (Mopsos). The editors of the inscription have suggested that the toponym Hiyawa should be equated with the land of Ahhiyawa (Mycenaean Greece).

Later Phoenician inscriptions attesting to the widespread and long-lasting activity of the Phoenicians in southeastern Turkey have been found farther inland at Ivriz (in Capadocia, beyond the Taurus mountains) (Hawkins 2000: 516, X46 Ivriz, plate 300),[34] and, far to the west, in Rough Cilicia near Alanya – a stone block from the end of the seventh century with a Phoenician inscription recording a land transfer (Mosca and Russell 1987). Ancient texts also refer to the area as Phoenician: a Phoenician harbor installation at Myriandros is recorded in the Assyrian annals (Kestemont 1985; Luke 2003: 28) and mentioned by Xenophon (*Anabasis* 1.4.6), and Ps.-Scylax.[35]

The Phoenicians were also present at a number of coastal sites in North Syria, including, most famously, Al Mina, a site that dominated the plain of Amuq and trade routes to Cilicia, the Euphrates, and Urartu (Woolley 1938; Boardman 1990; 1999; Perreault 1993: 63–8; Descoeudres 2002).[36] Al Mina is well known to Greek historians because of early claims that it was the first Greek overseas settlement (colony or *apoikia*), an identification based on the discovery at the site in the 1930s of large amounts of Euboean pottery dating from the early eighth century BC (Woolley 1938; Boardman 1980: 38–54; 1990).[37] The discovery of significant amounts of even earlier Greek pottery at a number of Phoenician sites along the Levantine coast, and especially at Tyre (Bikai 1978; Coldstream and Bikai 1988), has, however, led to doubt (Luke 2003: esp. ch. 3). Moreover, the pottery found at Al Mina consisted mostly of skyphoi and other symposium ware, not items for everyday use, which suggests that they were objects of trade, not evidence for Greeks living at the site. Other evidence that would have attested Greeks living at the site – architectural features, cooking ware, cult objects, or shrines – was lacking.[38] Kearsley (1995: 76), however, noted that Level 8 revealed a habitation unit shared by a mixed household of Greeks and Levantines, or by a Levantine group very familiar with the Greek ceramic repertoire. This agrees with Aubet's judgment that it was a "free port," at which Greek traders lived side by side and interacted with Phoenician and north Syrian traders (Aubet 2001: 63; Osborne 1996: 112–13; Coldstream 2008; Waldbaum 1997: 3–4, 6, 10).

Two other sites on the North Syrian coast, Ras el-Bassit and Tell Sukas, have also been suggested as *emporia*, with probable Phoenician, and possibly some Greek, presence. The port of Bassit, founded in the sixteenth century BC and destroyed at the close of the Late Bronze Age, was almost immediately, if sparsely, reoccupied (Perreault 1993). Three fragments of Euboean-Cycladic amphorae were found in tenth century BC levels. These, along with four pieces found at Tyre, provide the earliest evidence of Greek imports in the Levant since the interruption of trade at the beginning of the twelfth century BC (Courbin 1993: 95, 103). It was here that Courbin (1993)

found amphorae that had probably contained Greek olive oil but that he concluded were distributed by Phoenicians. Until the seventh century BC, however, there is no evidence for a large public building or cult place; the burials were by incineration and the burial offerings mostly Phoenician vases, with some local, north Syrian and Cypriot pieces; and the settlement pattern was described as "un agglomérat plutôt désordonné, dans un contexte levantin" (Perreault 1993: 69).

Tell Sukas, excavated from 1958 to 1963 (Perreault 1993; Riis and Thrane 1974), is another north Syrian coastal settlement suggested as a site of Greek trading activity. Occupied from the Neolithic, it was destroyed ca. 1170 BC, by the Sea Peoples or an earthquake. It was subsequently reoccupied, with no notable change in architectural development, for the next two periods – 1170–850 BC (H2) and 850–675 BC (H1) – each of which was ended by Assyrian destruction. Evidence found in the second period (H1), has been interpreted as suggesting that the Greeks were first present as an *enoikismos.* Riis's suggestion that they later constructed a Greek temple is rejected by Perreault, however, who sees the building in question as typically Phoenician (Riis 1970: 54–9; Perreault 1993: 77; Waldbaum 1997: 11).

In these north Syrian ports, it was the local north Syrians, and some Phoenicians, who predominated. Greeks appear only in small enclaves or as occasional visitors, until the last quarter of the seventh century, when a major Greek expansion of settlement occurred, including Naucratis in Egypt and Cyrene and Apollonia in Libya (Perreault 1993: 80–1; Waldbaum 1997).

Moving West

The Phoenicians and Cyprus

The continuing metallurgical activity of the Cypriots during the period 1050–850 BC, is attested by the large number of bronze objects found in burials there, and their continuing association with the Phoenicians can be seen in the abundant finds of imported Phoenician ceramics. Of approximately 131 Phoenician vessels found in Cyprus from this time period, 63 were from Palaepaphos, while 54 were from the Amathus region (Bikai 1987b; see also Bikai 1983, 1987a; Karageorghis 1983: 371–2). Among these finds were 12 Canaanite storage amphorae, indicating a strong Phoenician trading presence. Steel (1993: 153) notes that the relatively large quantities of Phoenician pottery, "may indicate that the individuals buried in this cemetery controlled trading links with the East." In the eleventh–tenth centuries more than half the tombs at the Cypriot port of Palaepaphos-Skales contained Phoenician pottery (Bikai 1983: 405), which Bikai suggests might even indicate the presence of early Phoenician settlers at the site (1983, 1987b: 125: "more than a casual presence"; 1994; Negbi 1992: 603–6.; Mazar 1991: 103). The fact that these pieces display many characteristics of Philistine pottery (palm motif, concentric circles, strainer spout), may also reflect the effects of Phoenician cooperation with Israelites in the south. The Palaepaphos/Skales cemetery thus represents the mixed cultures (and probably populations) of the new Cyprus that developed out of the tumultuous ending of the LC IIIA period. It also provides some of our strongest evidence for continuity of organized life on Cyprus

during the eleventh and tenth centuries, despite the lack of evidence for a settlement at that site.

In the mid-ninth century, the Phoenicians solidified their presence on Cyprus by establishing a settlement, Kition, in the area of present-day Larnaca. Kition, orginally settled in the thirteenth century, was a flourishing city with an active harbor and monumental temples associated with metalworking workshops in the Late Bronze Age (Karageorghis and Kassianidou 1999), but it was heavily damaged in the turmoil at the end of the millennium, and Gjerstad, based on his analysis of the pottery and the stratigraphy, posited a gap in occupation dated to ca.1000–850 BC) (1979: 231).[39] Traces of settlement dating to the tenth century have, however, been found in one section of the site,[40] and in AD 2000 finds from the Late Bronze Age–Iron Age transition were also found (Smith 2008: 8, n. 48). Smith's recent analysis of the stratigraphy of the excavations now indicates that settlement was continuous from the Bronze Age into the Iron Age, although the excavated areas suffered repeated episodes of damage from flooding and earthquakes (2008: 8). A shrine in Cypiot Geometric III may mark the beginning of intensive Phoenician settlement, as suggested by numerous Canaanite jars, including one containing an infant burial (Calvet 1993; Yon and Caubet 1987: 27–33).

Evidence for the Phoenician settlement has also been found in the restoration of the major Bronze Age temple as a monumental temple to Astarte.[41] The dedication to Astarte was evidenced by the discovery of a Red Slip bowl in the temple courtyard, dating to the first half of the eighth century and bearing an inscription by a worshiper from Tamassos of an offering of a sheep, lamb, and the hair of the dedicator to Lady Astarte (Amadasi and Karageorghis 1977: 149–60, no. D21; Karageorghis 2002: 146–7).[42] The dedication to Astarte was a significant adaptation to local culture for the Phoenicians, for the building of a temple to Melqart seems to have been an essential element in subsequent Phoenician foundations (Aubet 2001:155–8). Yon (1984), in fact, argues that there was a dual cult at the temple that included both Melqart and Astarte.[43] The dedication to Astarte has been explained by the hypothesis that Ithobaal of Tyre (887–856 BC), who was a priest of Astarte, was the city's founder and instituted her cult as the official cult of his kingdom.[44] This would support the date of the mid-ninth century that Karageorghis now gives for the foundation of the city (2002: 148–9; Aubet 2001: 51–2), and it accords well with Ithobaal's other expansionary activities. Further evidence for the Phoenicians' adaptation to local culture has been seen in their adoption of Cypriot types of the "goddess with praised arms" for votive figurines,[45] and in the creation of hybrid styles of pottery (Bikai 1987a: 2).

The Phoenician settlement was probably peaceful, and perhaps mutually desired (Swinton, Izzet, and Gutiérrez 2000: 1903). Contacts between Cyprus and the Levantine coast were longstanding and on-going. Phoenicians had for some time been present at Kition and Amathus as traders, with no evidence for conflict. The settlement gave the Phoenicians access to the rich copper deposits at Tamassos (a connection attested by the dedication of the Red Slip bowl by a Tamassan to Astarte, mentioned above). Nor were the Phoenicians present in Kition as rulers; Smith (2008) describes their relationship at this time as the cultivation of cultural and economic ties between autonomous polities. Kition become subject to Phoenician rule only with the Assyrian conquest in 733–732 BC.

The settlement of Kition can be seen as a significant enhancement of Phoenician involvement in the sea route west. The immediate motivation for Tyre's turn seaward has been explained in a number of ways. Some have suggested that overpopulation at Tyre provided the impetus, given the city's limited land and the stress laid on food supplies in its relations with Israel (Bikai 1987b: 126 and n. 18; Aubet 2001: 76–9). Looking more to the specific situation in which Tyre found itself, Luke (2003: 28) attributed its expansion to its exclusion from the routes to the metals of Anatolia by an alliance between the north Syrian kingdoms and Urartu. Frankenstein (1979) suggested that the motivation was the need to supply Assyrian demands for metals in tribute; on the other hand, Niemeyer (1984) concluded that Phoenician overseas expansion began before the eighth century and was thus too early to have been linked to Neo-Assyrian imperialism.[46]

Phoenicians in Crete – the question of workshops

Evidence for the participation of Crete in long-range trading routes stretching from Cyprus to the Atlantic comes from the cemeteries of Knossos: numerous finely decorated Attic-style drinking and pouring vessels, often stacked inside a large cauldron, are thought to have been of Cypriot origin (Brock 1957: 161; Coldstream and Catling 1996: Almagro-Gorbea 2001: 245); large vases that rested on rod tripod stands, or intricately decorated open work stands, were also of Cypriot workmanship, or at least inspiration; iron spits with firedogs served for the roasting of meat – these spits are clearly related to the spits found in Cyprus, of which the combination spit and fire dog in Amathus Tomb 523, was the most notable. They have parallels in Sardinia (Monte Sa Idda, Taramelli 1921: 56–7, fig. 79), and along the Atlantic coast in Iberia (Mohen 1977; Almagro-Gorbea 2001: 244–5), France (Mohen 1977), and Britain (Mederos Martín 1996: fig. 2). Most see the origin of this metalwork in Cyprus (Herodotus (V.9) speaks of Cypriot *sigynnae* and *obeloi*) (see Karageorghis 1970; Almagro-Gorbea 2001).[47] Its common appearance along the Atlantic seaways attests to the intensity of trading activity and possible travel of craftsmen across the Mediterranean reaching as far north as Britain (Cunliffe 1999).

Crete provides considerable evidence for the relocation of craft workers. These workers, formerly employed in the palaces but set adrift by their collapse, must have constituted a significant portion of the refugees seeking new homes. The Phoenicians' further westward expansion was thus not only a matter of establishing more new settlements but also of capitalizing on a newly available mobile workforce of highly skilled workers. It was through such travelers that ideas and information spread and new technologies were established,[48] The significance of their role is reflected in Homer's verses that say that public workers – craftsmen, builders, prophets, healers, and singers – were welcome everywhere (*Odyssey* 17.383–5).

Finds suggest that Crete was an important center of such workshop activity (Hoffman 1997: 252–9). At Knossos, small Cypro-Phoenician Black-on-Red, single-handled neck-ridge juglets were especially popular.[49] The slow-pouring juglets were probably used for unguents, and Coldstream (1969) suggests that their production took place at immigrant workshops at Rhodes, and also on Crete (1982: 268–9; Markoe 1992: 70). This suggestion has met with considerable criticism (Jones 1993;

Schreiber 2003: 293–306; Hoffman 1997: 176–89; Stampolidis and Kotsonas 2006: 343), but the presence of Phoenician craftsmen working on Crete has been supported in a number of other cases.

The ivory workers who produced the ivories from the Idaean Cave are suggested to have been immigrants from Phoenicia and north Syria (Barnett 1948: 6; Stampolidis and Kotsonas 2006: 345–6; see discussion Hoffman 1997: 148, 156–60). Three of the bronze bowls from the Eleutherna cemetery near Knossos and the Idaean Cave have been attributed to an immigrant craftsman (Markoe 2003: 211–12), as has been the production of the bronze "shields" found in the Idaean Cave (now identified as more likely lids of *lebeter*) (Stampolidis 1998). It is argued that the production of these and other crafted objects would have required hands-on transmission of technical expertise and thus a workshop (Stampolidis and Kotsonas 2006: 349).[50] A similar case has been made for the Cretan goldworking techniques of granulation and filigree, which, requiring years of hands-on training, were skills unlikely to have survived over the gap of several generations in their use that followed the collapse of the Bronze Age, or to have been quickly reinvented.[51]

The most contentious case for the activity of immigrant craftsmen in Crete involved the discovery of the "Tekke treasure" of gold and jewelry found in a reused Minoan tomb, Tholos 2, in the Tekke cemetery at Knossos. The treasure had been buried in two pots, a plain basket-handled feeder and a globular pyxis without handles, which were placed in pits beneath the floor on either side of the entrance to the tomb. The treasure consisted in a rich assortment of jewelry, including two pendants with elaborate filigree work and granulation, one with amber and rock crystal inlays; these were mixed together with unworked materials in the form of gold bars and gold, silver, and electrum dumps. Another notable item in the tomb was a Sardinian duck askos, a popular type widely exported, which attests to interactions between Crete and that island (Vagnetti 1989). Boardman (1967) dated the treasure to the second half of the ninth century, based on the stratigraphy, the contents of the pots and the pots themselves.

The Tekke treasure has received a number of interpretations since its discovery. Boardman first suggested that it was a foundation deposit for the tomb, a practice well known in the Levant (1967; Higgins 1969: 150–1). He subsequently rejected this idea, noting that Levantine deposits were usually made for temples, not tombs, and contained objects connected with the building being dedicated, such as building models, tools, bricks, or nails, rather than personal items (Boardman 2005; Hoffman 1997: 207–13). He then suggested that the contents of the pots may have been the working materials of an immigrant Levantine craftsman setting up his workshop: a "master-jeweler who came from the Levant to teach and practice his art in Knossos" (Boardman 1967: 59).[52] This suggestion was based on a common argument for the importation of skills and/or crafted objects – that the techniques employed – granulation and filigree in this case – while they were skills known to Minoan jewelers in the Bronze Age, were subsequently unattested for a long period and believed lost, and that they could not have been learned through the mere observation of imported objects.[53] Extending this line of thinking and responding to still other comments, Coldstream (1993: 100) suggests that the burial of even a rich Phoenician craftsman in a reused Minoan tholos tomb would have been so unlikely that it may be that he had been

granted this honor on the basis of his marriage to a member of the local aristocracy. Taking another tack, Kotsonas suggests that the burial was not that of a craftsman at all, but rather, that of a wealthy member of the elite who had privileged access to the products of a goldsmith's workshop and who controlled the raw materials as a mark of his high social status (Kotsonas 2006). Boardman's recent interpretation (2005) abandons his argument that the tomb was that of a craftsman, pointing out that the jewelry in the deposit appears to have been in sets and in good condition, that craftsmen were unlikely to have been able to afford such riches, and therefore that the hoards may have been burial deposits for two women, identified as wealthy immigrants who had come to Crete for refuge from troubles in the east.[54]

The discovery in a neighboring tomb, Tomb J, of a bronze bowl bearing the earliest Phoenician inscription known from Crete, consisting of about twelve letters, probably reading "bowl of X, son of Y" (Catling 1977: 11–14 and figs 27 and 28; Coldstream and Catling 1996: 1: 25–30; 2: 563–64; Hoffman 1997: 4; 12–13; 28 (#4); 120–3; on the inscription, see Sznycer 1979), added to the picture. The bowl, dated to ca. 900 BC, was at first assumed to have been the possession of a Phoenician resident on Crete (Sznycer 1979: 89–93; Coldstream 1982: 271; Negbi 1992: 608; Markoe 1998: 233), reinforcing earlier claims of the activity of resident Phoenician craftsmen on Crete (Dunbabin 1957: 40–1). This identification may have contributed at least in part to Boardman's suggestion (1967, 2005) that Tholos 2 was the tomb of a Phoenician craftsman. As Hoffman (1997: 12, 123) pointed out, however, the bowl's last owner may not have been a Phoenician, since it could have been acquired as loot or a guest gift.

Tomb J also contained the remains of two young women, one inhumed, and one cremated, and a collection of rich offerings, many with Attic connections – gold pins, a Minoan seal stone, ornaments with various precious stones, more imported than local vases, and a large portion of the 107 Attic pots found in the cemetery (Coldstream 1996: 133), including a symposium set, as well as more than 30 clay beads of various forms with a variety of incised patterns that may have "Attic associations" (Catling 1977: 12–13; Coldstream and Catling 1996: 1: 30).[55] Coldstream thus entertained the notion that the burial may have reflected a mixed marriage between an Attic woman and the tomb owner who was a Phoenician metic; however, he rejected the idea because no "overt signs" of an Attic type of cremation were found (1996: 137).

The swirling interpretations of the Tekke finds, ranging from the products of a rich migrant eastern craftsman's workshop to the status markers of a rising Cretan elite or wealthy immigrants, all of whom would probably have recoiled at the idea that they were taken as craftsmen, suggest the problems in interpreting archaeological artifacts that are, it seems, truly mute. But the back and forth of academic argument raises useful issues, even when most of the suggestions are ultimately rejected. The problem is to avoid nihilism – some skilled craftsman with an eastern background made the artifacts found in the Tekke tombs, even if he was not the occupant/owner of these tombs. The jewelry was probably made on Crete, as suggested by the use of amber, not used in the east but available to Crete from Corinthian trade on the Adriatic (Boardman 1967: 67; Hoffman 1997: 234–5).

Perhaps the most important point, however, is that, in terms of workshops and their probable employment of foreign craftsmen, the "Tekke workshop" does not stand alone. Numerous other workshops have been identified, some discussed above.[56]

The earliest Phoenician foundation in the west, Huelva in Iberia, consisted of a wide assortment of workshops. That workshops run by Cypriots were present in Sardinia was suggested by Catling (1984: 90; 1986: 215),[57] and Lo Schiavo has been central in advocating the activity of immigrant metallurgical establishments on that island (2001: 137–9; 1995; Lo Schiavo, MacNamara, and Vagnetti 1985: 62–3; Matthäus 1989; 2001: 154–69; see Chapter 8; Jones 1993). Also in the area of the Tyrrhenian sea, Markoe suggested that resident immigrant Phoenician metalworkers produced the silver vessels found at Pontecagnano on the Italian coast, suggesting that the Phoenician inscription on the silver bowl from that site, which refers to its maker as the "son of the metalcaster," could refer to such a workshop (1992 and n. 91; 1985: 72). Such workshops, established by immigrant craft workers from the east, provided a vital means for the transmission of skills and ideas after the collapse of the palatial workshops, and they played a major role in the intellectual and cultural ferment that resulted in the development of complex urban settlements in the first millennium.

Central Greece and Corinth

The east–west route, by the complexity and richness of its contacts, has a tendency to focus attention perhaps unduly. After the collapse of the palaces, other areas also found themselves free to develop new maritime contacts. In particular, the areas in the Gulf region – Messenia, Elis-Olympia, Achaea, Laconia (Coulson 1986: Sparta and Amyclae), Aetolia, Epirus, and the adjacent Ionian islands, areas that had been peripheral to the palatial system, and, with its collapse, were able to extend maritime contacts to areas previously under Mycenaean control. Freed from the shadow of the palaces, people in these settlements experimented with new craft methods and production technologies, and developed new trading partners, exchanging knowledge and expertise along with pottery, raw materials, and products, such as cloth, that have left no traces in the archaeological record. It was a time of intense contact and new ventures that broke through old boundaries, characterized by the development of a "West Mainland *Koine*" marked by shared pottery styles, tomb types, and artifacts – glass plaques and beads, metal artifacts and amber (T.J. Papadopoulos 1979, 1995; Mountjoy 1999: 54–5; Souyoudzoglou-Haywood 1999: 73–5, 115–16, 140–3; Lemos 1998; Eder 2003 [2004]: 46).

The *koine* reached as far west as the Italian coast, notably Otranto (T.J. Papadopoulos 1995), while in the north along the Adriatic its connections extended to Frattesina on the Po delta, a center of craft production in glass, glazed pottery, bone, antler, elephant ivory, bronze, iron, and amber (Eder 2003 [2004]: 44–7). The operation of the *koine* can be seen most dramatically in the amber discovered in chamber tombs in Kefallonia, the largest amount of that material yet found in Greece in LH IIIC contexts, it probably traveled along the Adriatic route from Frattesina. Other imports found on Kefallonia included Italian type fibulae, a razor, and ornaments of sheet gold.[58] All of these objects traveled in the *koine* in a pattern of small-scale trade handled by private individuals and entrepreneurs (Eder 2003 [2004]:49).

Whether Corinth is to be considered a part of this West Mainland *Koine* is not clear, but Corinthians were active in the Gulf and in the same areas to the north (Morgan 1998). The earliest signs of their activity in the Gulf are Geometric pot sherds from

Phokis (Delphi and Medeon), but the extent of their activity in the Gulf was not great. Corinthian pottery reached Medeon in some quantity in Late Protogeometric and again in Middle Geometric II. Finds in Delphi occurred not in the sanctuary of the god, however, but in houses, and Salmon suggests that this shows that the motivation was commercial – the Corinthians were en route to points beyond. Salmon (1984: 88–9; so too Morgan 1988: 333, 335) has estimated that the largest deposits of Corinthian material along the Gulf represent only a few voyages a year in later Geometric times, and even fewer earlier.

The next significant step in the westward route from Corinth was Ithaca, where Corinthian pottery has been found in two early sites, Aetos and the Polis Cave of the Nymphs (Morgan 1988).[59] The Polis Cave provides a good example of the transformative effect of the mythical on historical accounts. A small quantity of EH II material was found in the cave (stone weights, stone axes, and pottery fragments). After that, it seems to have been abandoned until LH IIIA, when 13 large bronze tripods were dedicated, beginning before the eighth century, along with other smaller items, mostly drinking vessels probably used for cult activities (libations and drinking parties). The tripods have been linked to the passage in the *Odyssey* where Odysseus hid the tripods bestowed upon him by the Phaeacians in the Cave of the Nymphs, reminding them of his past gifts to them and promising more gifts in the future (Homer *Odyssey* 13. 217, 352–66; Malkin 1998a: 104). Other than these objects, however, the majority of the finds in the cave consisted of Corinthian and Attic pottery; a situation paralleled at the nearby site of Aetos, which seems to have been both a shrine and a Corinthian settlement with a workshop that produced tripods for dedication in the shrine (Coulson 1991; D'Agostino 1994: 22–4; 2006: 217; Morgan 2007: 77).

The extent of the finds on Ithaca indicate little more than the island's use as a stopping point and a place of dedications to the god for a successful northward journey. There is, however, considerable evidence for Corinthian activity in Epirus (Morgan 1988: 316–23). At Arta, Geometric fragments have been found beneath the later colony; and much Corinthian Geometric has been found at Vitsa in the mountains of Epirus. Epirus could have been the source of slaves, or of iris for the perfumes and scented oils of Corinthian fame. Across the Adriatic, a few pieces of Corinthian ware have been found scattered from sites near Taras to Etruria, but significant amounts have been found only at Pithekoussai, where they probably arrived as items of trade, no other evidence suggests a Corinthian presence.

Significant evidence for a Greek presence in the Adriatic has, however, been found at Otranto, where Corinthian material has been found in ninth-century levels, and some Euboic-Cycladic sherds in the second half of the eighth century.[60] In fact, D'Agostino and Soteriou postulated a Corinthian trade circuit extending from the Gulf and up into the Adriatic; it was "closed," having its antiperaia at Otranto (1998: 367; Eder 2003 [2004]: 42). Such a circuit has also been suggested by the presence of the West Mainland *Koine* (T.J. Papadopoulos 1979, 1995; Coulson 1986, 1991; Eder 2003 [2004]: 43; Souyoudzoglou-Haywood 1999: 73–5, 115–17; 140–3). Perhaps Plutarch's story in *Greek Questions* that settlers from Eretria were expelled from Corcyra,[61] was developed as an aition for this division of interests, although Ridgway (2002a: 356) objects that the story is "too explicit to be merely 'a nice little aition,'" as Bakhuizen (1976: 19, 22–3) called it.

Plutarch's "nice little aition" has spawned a huge controversy over the participation of the Euboeans in this sphere, with the main players being Malkin and Morgan (see also D'Andria 1983; Antonelli 2000). Malkin (1998a: 75–81; 1998b: 5–6) proposed that the Euboeans made a brief settlement on Corcyra, arguing that, although there is no archaeological evidence, the lack of systematic excavations or surface surveys may have meant that evidence was simply missed.[62] On the other hand, Morgan points out the difficulties of accounting for the presence of Euboeans in the Corinthian Gulf since, "otherwise only literary evidence places Euboeans anywhere near this area" (1998: 295, quotation, 296).[63] Ridgway (2000b: 355) summed up the debate which occurred at the 1996 conference on Euboea in Naples and in its subsequent publication (Bats and D'Agostino 1998): according to Malkin: "absence of evidence is not evidence for absence"; according to Morgan: "it seems unlikely that Euboians of any kind had anything much to do with the local concerns of Kerkyra."

Neither the Corinthians nor the West Mainland *Koine* ventured farther west into the Tyrrhenian Sea, where the Euboean/Phoenician settlement of Pithekoussai was established (D'Agostino 2006: 201; D'Agostino and Soteriou 1998). Parallel to the "closed" Corinthian trade circuit, D'Agostino and Soteriou postulated a second trade circuit, the Euboean, in the west of Greece. In contrast to the Corinthian circuit, the Euboean circuit was "open" in the sense that it was not limited to a series of predetermined destinations. Operating on the coasts of the Tyrrhenian Sea, it was totally outside the Greek world as it was then perceived.

The route that the Euboeans took to reach the Tyrrhenian Sea is not known; the discovery of numerous pendant semicircle skyphoi in the sanctuary at Delphi shows that they (or at least their pots) made visits to the Gulf (D'Agostino and Soteriou 1998: 367), but there is much skepticism about extensive Euboean activity in the Gulf and about a Euboean approach to the west through the Gulf (Salmon 1984: 137–8). Crossing the Isthmus would have been difficult, and Euboean contact with Ithaca was both tenuous and later than Corinthian. Moreover, the Euboeans appear to have followed the Phoenicians westward, and this meant a route to the south, from Crete (Kommos) to eastern Sicily (Morgan 1998: 294). This is suggested by their establishment of a settlement at Naxos, the first landfall in Sicily from the east, in 735 (Thuc. vi. 3; Ephor. ap. Strabo vi. p. 267), a year before the Corinthian settlement at Syracuse. From there the route would have passed through the Straits of Messenia, past the Aeolian islands, and on to Sardinia, which already had Phoenician visitors, the Tyrrhenian coast being under too much local control to be approached directly. It is unlikely that Corcyra was on the route: lying to the north, it would have been considerably out of the way. As Powell (1993a) has pointed out, this route traces that of Odysseus – Skylla and Kharybdis (the Straits of Messenia), the islands of Aeolus, and Kirke's island (Pithekoussai) – and it probably reflects ninth century geographical knowledge of the westward routes and their dangers.

By the late eighth century, Corinthian interest in Epirus declined as the city turned southward towards Sicily and a policy of establishing settlements – *apoikia*. Their first was the well-known foundation of Syracuse on the east coast in ca. 734, a year after, and perhaps in competition with, the Euboean establishment of Naxos. It was not until the much later foundation of Ambracia in 650–625 BC as an entrepot in the Epirus trade that Corinthian interests again turned northward.

Phoenicians and Others in the West

The port at Kommos on Crete provided a staging point for east–west travel (Vagnetti and Lo Schiavo 1989: 221). A major international port in the Bronze Age, with palatial buildings and ship sheds for winter storage (Shaw and Shaw 1990; 2000; 2006; Shaw 2004),[64] Kommos underwent a hiatus in trading activity beginning ca. 1250 BC, when the town and the civic buildings were deserted (J.W. Shaw 2004). Early in the new millennium, however (ca. 1020), activity resumed at the site as indicated by the remains of a small temple (Shaw and Shaw 2000). It was probably set up by passing sailors – there is no sign of settlement. Finds of Eastern artifacts dating to the early ninth or even possibly the early tenth centuries, indicate increased activity and visits by easterners. Visits by sailors or merchants from northern Boeotia, and Lokris or Phokis are also evidenced by inscriptions. J.W. Shaw (2004) suggests that these were perhaps members of a mercantile association from that area, possibly the Euboean *koine* (see above). During a rebuilding of the temple in the ninth century a shrine was added, with an unusual tri-pillar installation that has been identified as Phoenician (J.W. Shaw 1989; 2000; 2004). Even at this date, however, there is no evidence for Phoenician settlement at Kommos, which the excavators consider to have been used merely as a watering place and entrepot by seamen moving on to Sardinia and ports farther west (J.W. Shaw 1989: 182; 2004: 48–9). Arthur Evans (1921–35 2: 88–92) suggested that it was the port for Ayia Triada and Phaistos, and was set at the southern end of a transit road linking the Mesara with Knossos. Evidence for such a road is still to be found, but a sea link with the north coast of Crete, continued from that of LM II, is now considered probable, evidenced by the appearance of imports mainly at coastal towns that would have been visited by trading vessels (Shaw and Shaw 2006: 873).

By the late ninth/early eighth century, archaeological evidence indicates Phoenician trade contacts in the Sardinian village of Sant'Imbenia, Alghero (Sassari) (Bafico 1991; 1998; Balfico *et al.* 1997; Bernardini 1996), as suggested by the find of a Euboean cup with pendant semicircles (Bafico 1998: 359). Other finds also attest both trade and metallurgical activity: fragments of Euboean painted skyphoi together with Phoenician plates and vessels, and two hordes of Sardinian bun ingots, weighing 54 and 44 kilograms respectively (Bafico 1991; 1998; Ridgway 1995: 79–80; 1998a: 316–20).[65] The two hoards were found tightly packed, probably for export, one in a Phoenician transport amphora of a type common in the west, the second in a local, handmade impasto version of a Phoenician amphora, which was found at the same level as the Euboean semicircular pendant skyphos (Ridgway1998a: 318). Most of the imported pottery is Phoenician, and the local pottery shows Phoenician influences (use of fast wheel, geometric impressed or incised decorations, and imitation of the shapes of Phoenician vessels). Ridgway (2000c: 102; 2002d: 220) attributed this activity to Phoenicians, not to Euboeans,[66] and suggested, on the basis of the find of a Levantine-style cooking pot, that some Levantines lived in the indigenous community (1998a: 320). The settlement was also involved in trade with Carthage, for amphorae characteristic of Sant'Imbenia constituted the largest single group of finds in the earliest layers of Carthage (Docter 1999: 93). Sant'Imbenia perhaps functioned as an

emporion serving merchants of different origins, a role also played by the somewhat later the Phoenician settlement of Sulcis (Bernardini 1996: 541).

In ca. 750 BC the Phoenicians established their own Sardinian settlement, Sulcis, on a small island off the southwest coast of the island, now called Isola di Sant'Antioco (Paus. x. 17, 9; Claudian, B. Gild. 518; Bernardini 1988; Aubet 1993, 205). It was an area rich in minerals (Rizzo 1989: esp. 29–38; Ridgway and Serray Ridgway 1992), and it has been suggested that the Phoenicians chose the site to serve as a loading port for the silver-bearing lead found in the region (Markoe 1992: 74), An urn found at the Tophet at Sulcis reflects the rich cultural interactions of the settlement – a Greek vase, Late Geometric Euboean in style, but probably Italic in form, found in a Phoenician tophet (Pesce 1961: 70, fig. 116; Coldstream 1968: 103, 388), Ridgway (1992a, 114; Ridgway and Ridgway 1992: 355;) suggested that the vase was probably made at Pithekoussai.[67] A second lid similar to the one associated with the urn was also found (Bartoloni 1989, 170, fig. 2), which has a close parallel in a piece discovered at Caere in southern Etruria (Rizzo 1989: 29–38). Material from Al Mina was also found, evidence for an eastern terminus of the east–west trade route (Bernardini 1988). Other Phoenician settlements contemporary with Sulcis included Bithia, Nora, and Cagliari, some of which lived on to become modern cities.[68] The ultimate goal of the Phoenicians, however, is suggested by their establishment of many small settlements along the coast of Iberia, stations on the route westward, which ultimately reached Huelva in Iberia, ca. 900 BC, in an area fantastically rich in silver.

Carthage

The Phoenicians' most notable settlement in terms of a westward route (and of later history) was the establishment of Carthage (Qartihadast), on the African coast. The foundation is traditionally dated to 814 BC,[69] a date that is roughly supported by the earliest archaeological finds.[70] The location of the most ancient settlement at Carthage has recently been established as the hill of Byrsa, in the area of the harbor and tophet, where remains of modest structures from the eighth century were found in 1983 under what later became the Decumanus Maximus of Roman Carthage (Rakob1989; Aubet 2001: 215–18). Finds included a duck skyphoi, six other skyphoi, a kotyle (probably an imitation), and single-handled bowl (*Einhenkelschale*) of a type frequently found in Lefkandi before 750. There is evidence that the settlers had contacts with the Greek settlement on Pithekoussai from an early point. Fragments of Euboean pottery were found in a foundation deposit under the first levels of the tophet at Salammbô,[71] thus in the earliest levels of occupation, and in tombs in the cemetery on the Hill of Juno in Carthage dating to the first half of the eighth century (D'Agostino 1977: 48–9; Vegas 1992: 188).[72] These finds support other evidence that the foundation of Pithekoussai occurred earlier than the usual mid-eighth century date attributed to it. In Pithekoussai, these finds have parallels in Carthaginian imports found in 16 graves (Ridgway 1998b: 306), in what has been called the "Carthaginian connection" (Docter and Niemeyer 1994, term adopted by Ridgway 1998b).

The motivation for the settlement of Carthage probably lay in the establishment of a major port on a southern route to the rich metal resources on the Tyrrhenian coast and the silver of Spain. Evidence for metalworking has been found in an area near

the sea – walls, beaten earth floors, and a large quantities of iron slag and fragments of *tuyéres* – as well as the remains of a potter's kiln, suggesting that the early city was surrounded by an "industrial belt" (Vegas 1992: 182).

Another motivation suggested for the establishment of Carthage was the creation of a new "capital" as Assyrian pressure on the homeland increased. Still another possibility was internal strife within Tyre, as suggested by the traditional story of the city's foundation (see Aubet 2001: 215–18; Lancel 1995: 22–5, 35–8). This story, mixing legitimizing legends with possible hints of historical events, attributes the foundation to a schism within the royal family of Tyre: the young king Pygmalion assassinated his sister Elissa's husband, the high priest of Melqart, who was also his uncle. This led Elissa to flee from the city accompanied by a group of aristocratic followers, taking with her the sacred objects of the cult of Melkart. The fugitives stopped in Cyprus, where they picked up a contingent of supporters that included the high priest of the temple of Astarte in Kition and some 50 young girls destined for sacred prostitution in the temple to be founded in the new settlement.[73] They then proceeded to the coast of North Africa. At least in legend, the causes of the foundation were wholly political – the new city was legitimized by the involvement of a royal princess, members of the aristocracy of Tyre, the sacred objects of the Tyrian cult of Melqart,[74] and the participation of the high priest of the Cypriot-Phoenician cult of Astarte.

Metallurgy and state formation in Italy

In this period in central Italy, settlement change was taking place primarily through indigenous activity, with urban entities appearing before the settlement of Pithekousai, and well before widespread Greek presence in Italy or the period of polis-formation in Greece (Guidi 1998). Metallurgy, which had been developing since the fourteenth century in a cultural *koine* encompassing both north and central Italy and the Aegean area, was disrupted at the end of the Bronze Age, and a sort of Dark Age ensued, with a return to regional specialization. In the tenth–ninth century, however, with recovery from the collapse, metallurgical advances brought about a widespread restructuring of the population, especially in the area richest in metal resources, Etruria (Ridgway 1992a: 8). Numerous smaller settlements in which metallurgy was practiced were abandoned, and their populations moved together in a sort of *synoikismos* to form large proto-urban complexes (D'Agostino and Soteriou 1998; D'Agostino 2006). The motive for the consolidation is suggested to have been new demands put upon metalworkers by the increasing market (Bietti Sestieri 1981, 1997; Guidi 1998; D'Agostino 2006: 206), leading to a rationalization of metal production and distribution. While in the twelfth and eleventh centuries, metalwork had still been fairly simple and work had been carried on by individual artisans, by the tenth century, the production of a wider range of objects required artisans to work in groups in workshops. As Italian workshops began to produce a wider range of objects, their work attracted Sardinian and Phoenician traders. As demand increased, the small villages and individual artisans, faced with increased need for the organization of production, distribution, and exchange, chose to meet these needs by consolidation of the small communities. The larger communities that resulted provided the basis of the urban state (Bietti Sestieri 1981: 263). That Phoenician traders, interested in increasing

production and with much experience in such matters, made helpful suggestions for the reorganization cannot, of course, be ruled out.

Of course, not all Italian metalworking villages participated in this reorganization. Numerous sites along the coast remained as small metalworking facilities. One of these recently discovered (in AD 2000), was a metalworking village spanning the period from the Middle Bronze Age to the sixth century BC, located west of Naples, near the harbor of Roman Pompeii (Cicirelli, Arbore-Livadie, and Boni 2006; Balassone *et al.* 2009). Built on a group of small artificial islands surrounding a navigable canal network, the settlement was made up of a number of houses and craft workshops in which ceramic and metal objects were produced, using lead, bronze, and iron; and horn, ivory, gold, and amber were also worked. The metals have been identified by lead analysis as coming from western sources – Sardinia and Iberia – rather than from the Greek world. Numerous other small coastal settlements are now known, with still others perhaps washed away by changes in the sea levels. These do not seem to have been centered on metallurgy, however; some may have existed primarily to produce salt or fish (Pacciarelli 2000: 170–5, fig. 71).

Urbanization and state organization was thus reached at an earlier point in Italy than the *polis* can be identified in Greece (Bietti Sestieri 1981). That the Greeks were long credited with priority and influence over the process in Italy can be attributed to discovery of Euboean and Corinthian ceramic cups in many graves at these sites. But it is now recognized that these do not necessarily provide evidence for the widespread presence of Greeks – "pots are not people." In fact, many of the cups were probably carried by Cypriots, whose role in east–west trade had grown increasingly important with the fall of the Mycenaean palaces and before the Phoenicians developed their western trade (Vagnetti 1998: 73; Lo Schiavo, MacNamara and Vagnetti, 1985; Vagnetti and Lo Schiavo 1989; Karageorghis 1993, 1995). Others could have arrived in the kit of Greek craftsmen seeking refuge and new working sites after the collapse of the palatial system, for whom the rich metal resources of Elba and the central Tyrrhenian region looked promising. Finding it not as welcoming as they had hoped, many of these probably moved on to Pithekoussai. But whoever brought the cups – sailors, potters, metalworkers – It seems unlikely that they were among the elite, or that they were carried these cups as guest gifts to the local elite (D'Agostino and Soteriou 1998). The appeal of the cups was more likely to have been as attractive novelties – guest gifts on a minor level – and their bearers were more probably refugee workers than princes. The cups do appear to have had an appeal, for soon the Italians were making imitations. But whoever brought these cups, it is unlikely that they also brought along with them the concept of the urban state, which was not yet developed in Greece.

This flight of craftsmen from collapsed palatial workshops may well have been the most important change in terms of the future. As men in search of work moved outward in large numbers from ruined settlements to establish new homes in locations previously only visited or barely heard of, they not only carried their skills with them, they learned new skills, both of craftsmanship and community organization, sometimes by trial and error, sometimes from their new neighbors. Moreover, as in the diaspora of the Neolithic, physical need may have started the movement, but more was required, some spirit of adventure and exploration, to set so many people in motion. Those who chose to move were carriers of technological expertise (D'Agostino 1996;

Vagnetti 2000: 319), and they were obviously open to new ideas. The result was different peoples of various "nationalities" – Cypriots, Euboeans, and other Greeks,[75] as well as Phoenicians – moving about rather freely in a maritime world, exchanging ideas and knowledge along with material objects (Ridgway 1992a: 107–9).[76] The precise roles of various groups at any given time is not always clear – and was probably not clear in antiquity, when ships carried crews, and sometimes passengers, of various "nationalities" on repeated circuit routes. In this period of ferment of the tenth and ninth centuries, increased contacts opened up new opportunities for the spread of ideas and technologies, and both the economy and population grew rapidly. Many new settlements were created. Effective use of the new technologies in some cases brought about a need for change in patterns of authority and direction. Thus it is not surprising that we should see a new era of state formation.

Pithekoussai

While individual craftsmen and other refugees were making their way west, in the early eighth century BC, or probably even earlier, Greeks – Euboeans from Chalkidis and Eretria – established a more formal settlement, Pithekoussai, offshore from the metalliferous region of Italy on the small volcanic island of Ischia in the bay of Naples (Ridgway 1992a; Coldstream 1994a; 1995b). The settlement was perhaps spurred on by events at home – the run-up to the great armed struggle between Eretria and Chalchis over possession of the Lelantine Plain that Thucydides called the first war to have involved all the Greek peoples (*History of the Pelopponesian War* 1.15; Hall 2007: 1–8; Parker 1997). The war itself is undatable, but it is generally assigned to the late eighth century, and thus would have been too late to have caused the settlement, but it must have been preceded by periods of local hostilities. For whatever reason, burials in the Toumba cemetery at Lefkandi, and most habitation at that site, appears to have come to an end in ca. 825 BC.

More probably, however, the Euboeans were following the lead of the Phoenicians in establishing an *emporion*, drawn by the attraction of the metal industry developing on the Italian coast, the rich iron resources there, and the site's location on the route to another source of metals, Sardinia (Coldstream 1994a: 47, 49; Bartoloni 1991; Ridgway 1994; 2002b: 216; Bailo Modesti 1998). The Euboeans had a long tradition of metalworking at home, and, through their contacts with the Cypriots, they had developed the technology to produce high quality iron swords using the processes of quenching and then piling together thin laminations of carburized iron to make products of great hardness and elasticity (Bakhuizen 1976; Snodgrass 1982).[77] Their technological expertise gave them the potential not only to produce metal, but to profit by exploiting the secondary products market – obtaining raw metals from the Italian coast and returning manufactured products for sale. It was a promising location. The islands in the Bay of Naples had long attracted eastern visitors by their potential as trading centers and access to metals. Ischia was large enough to sustain a population of a reasonable size, close enough to the mainland to provide access to its sources of metal (as well as a market for products of its own workshops), but far enough off the coast to be protected from raids by Italians disgruntled by the arrival of competition.

The foundation of Pithekoussai is conventionally given as 750 BC, but it must have occurred considerably earlier since the three known archaeological sites on the island – the cemetery, settlement area, and a metalworking center – were all "fully operational" by that date (Ridgway 1992a: 41; 2004: 29). Moreover, material from Pithekoussai was found in the earliest levels of Carthage, whose foundation is dated to 814 BC.

The foundation of Pithekoussai was traditionally attributed to Chalkidians and Eretrians (Strabo 5.4.9; Livy 9.22.5–6; Ridgway 1992a: 15–16),[78] but archaeological finds at the site have made it clear that the settlers were not exclusively Euboean but a mixed group, with Levantines – Phoenicians and north Syrians – present in the population from the beginning and throughout the lifetime of the settlement (Boardman 1994b; J.K. Papadopoulos 1997b; S. Morris 1998: 362). In the cemetery just over a third of the burials contained at least one Phoenician or north Syrian article. Especially noteworthy were the seals of the Lyre-Player Group, whose most common origin was north Syria or Cilicia (Buchner and Boardman 1966: esp. 61). Undoubtedly not all burials containing Levantine articles were burials of Levantines, but nonetheless the large number of such finds suggests the stable presence of a number of Levantines in Pithekoussai in the second half of the eighth century (Ridgway 1992a: 114–16).[79] Even more convincing was the discovery among the earliest burials (750–725 BC) of one that contained an infant in a Canaanite amphora bearing an Aramaic inscriptions, suggesting that the infant had at least one north Syrian parent (Ridgway 1992: 111–18). Ridgway even suggested that, "It almost looks as if the Euboeans had Phoenician advice in the selection of a suitable location" (Ridgway 1992: 111).

The presence of these Levantines, who were experienced in establishing overseas settlements based on metallurgy and trade, must have greatly assisted the Greeks in the creation of Pithekoussai as a successful *emporion*. The Greeks could draw on the long Phoenician tradition of well-developed civic structures that were well suited for communities of craftsmen and traders, as well as on the Phoenicians' experience with establishing overseas settlements created to serve these trade interests.[80] From Pithekoussai the Greeks were also able to draw on the urbanizing experience of the Etruscans on the coast nearby, metallurgists and traders who were themselves in the process of developing an urban state at an earlier point than the polis can be identified in Greece (Bietti Sestieri 1981). The experiences from these settlement activities, communicated back by the Greek residents to their "home" communities in Greece, ultimately contributed to the development of the uniquely Greek urban entity, a cross between the agrarian and the commercial and industrial settlement – the polis.

It seems clear that the primary motivation for the settlement of Pithekoussai was not its access to arable land (of which it had fairly little), but its safe, off-shore proximity to the metal-rich areas of Elba and Etruria.[81] The utilization of these metal sources by the settlement has been confirmed by the analysis of a piece of iron from the acropolis dump on Pithekoussai, which, as Ridgway noted, showed "unequivocally" that it was mined on Elba (Buchner 1969: 97–8; Ridgway 1992a: 91). Evidence for the working of iron – slag, booms, and the mouthpieces of bellows – has been found at Pithekoussai, both in the metalworking quarter of Mazzola on the hill of Mezzovia and, after its destruction, at a site on Monte di Vico (Ridgway 1992a: 91–6; Markoe 1992: 79 (working of iron and hematite); Coldstream 1994a: 49–51; Klein 1972). Both Strabo and Livy also mention the working of gold, which supports the suggestion that an element in the

Pithekoussian economy was the creation of products – gold jewelry, especially new types of fibulae – that could be sold back to the Etruscans, producing "marginal utility" (Strabo 5.4.9; D'Agostino 2006: 215, 222, 224 (marginal utility); Coldstream 1993 (production of fibulae of Italian type); Ridgway 1992a: 34 (goldwork)). Greek pottery appeared increasingly on the mainland, and Ridgway (1992a: 132–3) suggested the presence of a Euboean potter in southern Etruria before the middle of the eighth century. Thus Greeks as well as Phoenicians were active in Italy, where they engaged in pottery production and metalworking (D'Agostino 1996: 307; 2006: 224). A resource accessible from Pithekoussai that was probably of more interest to the Phoenicians among the settlers, however, was the silver of nearby Sardinia, where the presence of Phoenicians at Sulcis in the late eighth century may have been directly related to its use as a loading port for argentiferous lead from the neighboring region (Acquaro 1999; Markoe 2000: 196–79; 1992: 609–11; Matthäus, 2000; Fletcher 2006).[82]

Although the settlement of Pithekoussai was motivated primarily by the island's access to metallurgical resources, the settlement's large size soon made it necessary to exploit its *chora* as a source of food (Ridgway 2000b: 186). In 1988 a small agricultural village was found at Punta Charita, a steep promontory on the southwestern extremity of the island. Settled between 750 and 730 (Gialanella 1994; De Caro and Gialanella 1998), the site consisted of two buildings, and seems to have been inhabited by a small group of farmers who grew vines, olives, and cereals, and also fished, collected mussels, and worked stone (Ridgway 1995: 83). While it suffered destruction twice by eruptions and mudslides, it was rebuilt each time and continued in use until the first half of the sixth century (Ridgway 1995). According to Gialanella, it was a community of "livello sociale medio," as indicated by the presence of fine tableware and Attic olive oil. Only one fragment of indigenous pottery was found, and thus Gialanella concluded that the inhabitants were Greeks, although they probably used indigenous manual labor (some burials of lower status were identified by the use of inhumation, the absence of funerary gifts, and the fetal position of the bodies). Numerous fragmentary remains of agricultural activity continue to be found at scattered sites throughout the island (Ridgway 1995: 82–4; Gialanella 1994; De Caro 1994).

Pithekoussai played a significant role in the networks of Mediterranean trade (Giardino 1992). Pottery made of clay from the island has been found at the Phoenician site of S'Antioco on Sardinia, a site that also provided evidence of connections with Al Mina in the east (Bernardini 1988). Objects of Pithekoussian type have been found as far afield as Spain, where a typical Pithekoussian fibula was found in a grave at Trayamar.[83] Moreover, Niemeyer (Docter and Niemeyer. 1994: 101–2) notes that a bellows' nozzle found at Pithekoussai was almost identical to nozzles found at Toscanos and elsewhere in southern Spain, carried there, he suggests, by Phoenician traders. As this evidence for the external connections of the people of Pithekoussai suggests, the settlement was not made in isolation, but in the context of Phoenician expansion and settlement in the west and of a well-established indigenous network of metal production and exchange in Sardinia and Etruria. As Coldstream describes the situation, the Euboeans,

> were far from being the first in the field; on the contrary, they had to fit into a pre-existing network of East–West trade, beginning with exchanges of Cypriot copper for the iron of

> Sardinia as early as the twelfth and eleventh centuries BC. Meanwhile, a remarkably sophisticated Sardinian aristocracy, supporting a versatile bronze industry, was already exploiting the metal sources of northern Etruria, long before they were tapped by Phoenicians and, more indirectly, by Greeks. (1994a: 47)

The Greeks soon established another settlement in the area, Cumae, on the coast opposite Pithekoussai, having first driven out the local inhabitants (Gasparri and Greco 2009: 13–17).[84] Possibly they were seeking refuge from the repeated earthquakes and volcanic eruptions on the island (Coldstream 1994a: 49–50), or were looking to possess more abundant agricultural land. Recent claims that the foundations of the two Euboean settlements were contemporaneous were based on the reported discovery at Cumae of early Greek material – "fragments of vases as old as anything found on Pithekoussai" (D'Agostino 2006: 233). However, D'Agostino has warned "one must be careful not to draw premature conclusions regarding the foundation date" based on these few fragments (1999a: 209–11; quotation, 2006: 233). Perhaps more important than dates of settlement, he sees the two settlements as fundamentally different: Cumae was an "official" foundation, with a tradition of an *oikist* and a formal *ktisis*, while Pithekoussai lacked this founding tradition. Moreover, there is strong evidence for the presence of an elite in Cumae, where some burials were exceptional in their echoes of heroic funeral ritual – cremation with bones laid in a silver urn placed inside a bronze *lebes*, and often covered by a bronze shield – ritual elements similar to those found in the graves in the Heroon by the west gate at Eretria (D'Agostino 2006: 233–4). While status differentiation in burial,[85] and the presence of a large lower class, is now recognized in Pithekoussai (D'Agostino 1994), most of its burials still await analysis and publication, and thus far they have not revealed the same wide divisions between the classes exhibited by Cumae's burials. The evidence still suggests that Pithekoussai was fundamentally dependent on a work force of skilled craftsmen and the activity of its merchants. D'Agostino (1994: 26; 1999a; 2006: 233) does not classify it as an *emporion* because it did not have the guarantee of a strong local political authority; rather, he called it "una apoikia de tipo particolare" (1994).[86]

Models and State Creation

A popular explanation for the development of the polis is that it sprouted from the agrarian village according to the primitivist Big Man/Chieftain model – a model that was borrowed from the anthropology of Melanesia.[87] As David Small (1998) has pointed out, however, that model is applied by anthropologists to people who are in an early stage of development, not to the survivors of a more highly developed culture. Dark Age Greek communities cannot be understood as communities involved in primary state formation (see Chapter 8). The post-palatial period in Greece by no means started from the ground zero implied by the Big Man model. Even when population (or at least discovered settlement sites) dropped to low numbers in mainland Greece, we are not justified in assuming that civilization was totally lost. On the contrary, evidence for continuity between Bronze Age and Iron Age Greece is becoming increasingly evident, as attested by early, although ultimately unsuccessful,

efforts at recovery in Tiryns and Mycenae (see Chapter 8). In the language of urban development, the Greek *poleis* developed as secondary, not primary, states.

Thus, rather than a model that posits a single episode of state development, the model that seems to fit the situation best is the Dynamic Model of Joyce Marcus (1998). This model posits a undulating cycle of growth and collapse in state development. It is well illustrated by Watrous' analysis of state formation on Crete.[88]

Watrous (in Watrous, Hadzi-Vallianou, and Blitzer 2004, focusing on the Mesara) identified not one state formation in Crete, but a series of formations, beginning with a "palatial state" that arose after the crisis at the end of the third millennium (MM IA). The onset of that state was marked, he states, by a sharp increase in nucleation, craft production, and overseas exchange (Watrous, Hadzi-Vallianou, and Blitzer 2004, chs 9–11, focusing on the Mesara). A collapse occurred at the end of the second millennium (the arrival of the "Dorians"), in which most existing settlements were deserted and there was a flight to the heights (Nowicki 1999a, 1999b, 1999c; 2000). This was followed, in the early tenth century, as people came down from the refuge settlements, by a process of settlement nucleation, that created the "polis state." In many cases the people who returned from the heights maintained a tie to their former refuges, revering them as holy sites, thus reinforcing community history and identity (Wallace 2003). These "polis states" were in many ways independent; regionalism in craft (pottery) production is well attested, and the regions do not seem to have been under external central control (i.e., Knossos) (Palaima 1984b; Day, Wilson, and Kiriatzi 1997; Haskell 2004). Knossos, in fact, has shown little evidence that its former preeminence survived (Coldstream 1991), Some view this as the first stage in the rise of the polis (Wallace 2003), but Watrous puts that development in the seventh century, with a *synoikismos* in the sixth century that created the "Dorian polis."

It was thus in this context of a dynamic Mediterranean network of exploration and trading ventures linking Phoenicians, Cypriots, Sardinians, mainland Greeks, Italians, and Iberians in the first half of the first millennium that the creation of the small-scale city-states, of which the *polis* was one, took place over time and with serious ups and downs. These developing polities were truly creations of the sea, products of a process that Crielaard (1998) has described as "surfing the Mediterranean web." This web operated, as Jean-Paul Morel (1984: 150) has suggested, within the "fantastic cauldron" that was the Mediterranean sea, mixing together peoples from all the areas that were caught up in the Mediterranean maritime networks. Thus, despite the undeniable agrarian basis of the economies of all ancient peoples, including the Greeks, the "model" within which to view the birth of the Greek polis is not that of the isolated farmstead, but rather that of the "fantastic cauldron" of Mediterranean maritime interactions.

Notes

1 De Spens (1998) argued that, since it covered the laws applicable to international commerce in a thorough but also entertaining way, the piece could have had a didactic aim.

2 Most Egyptologists now accept it as a work of historical fiction, as argued by Helck (1986); see Baines (1999), Scheepers (1992), Egberts (2001), Sass (2002), Schipper (2005); the

palaeography of the text points to a Twenty-Second Dynasty date for its composition (Caminos 1977: 3; Helck 1986:1215), while a number of anachronisms are more reflective of a post-Twentieth or Twenty-First Dynasty timeframe (Sass 2002). Text at http://en.wikipedia.org/wiki/Story_of_Wenamun (accessed March 17, 2011).

3 Velleius Paterculus, 1:2, 3; 1:8, 4; Strabo 1:3, 2; Pliny, *Natural History* 19:216; Pomponius Mela 3:6, 46; a sanctuary to Melqart older than the one in Gadir was attributed to Lixus by Pliny, (*Natural History* 19:63), making it the earliest Phoenician settlement in the west.

4 On lead isotope provenance studies see Stos-Gale (2001).

5 Negbi (1982) also credits this early Phoenician expansion.

6 http://www.independent.co.uk/news/world/europe/europes-oldest-city-is-found-394505.html (accessed March 17, 2011). Director of the dig, Juan Miguel Pajuelo.

7 These dates are being raised as a result of the new radiometric datings (See Aubet 2001: 372–81; see Neville 2007: n. 1).

8 First suggested by Treidler (1959), who, however, located the sites farther west on the Algerian coast, and saw them as settlement attempts made from Pithekoussai, and at a later date, ca. 700 BC; Boardman, however, notes that the names could hardly have been applied by the Greeks after Carthage controlled the coast (2006: 197).

9 On the use of the term, see Purcell (1997), Van Dommelen (1997), De Angelis (1998), Hodos (2006: 13–22), Osborne (1998).

10 On the terminological problem, see Ridgway (2000d: 234), who also suggests "interaction," and "acculturation."

11 According to the traditional chronology, Gilboa (1999a: 123–4).

12 The dating of these finds by Gilboa (Gilboa 199a1999a: 120, 123) follows the traditional High Chronology, putting them in the early or first half of the tenth century BC.

13 Walbaum argues that iron working originated in Greece and was taken to Cyprus by refugees at the end of the millennium, see comments in Hoffman (1997: 141) and Pickles and Peltenburg (1998).

14 By tradition the people of Amathus were autochthonus (Pseudo-Skylax of Caryanda, end fourth century) and called EteoCypriots. While such traditions cannot be trusted as historical reports, it is the case that two official languages were used in the city until the end of the fourth century BC, one of which was Greek, the other an unknown language. On the other hand, the material finds from the site do not differ significantly from the common Cypriot *koine* that appears throughout the island; for discussion, see Iacovou (1999a: 152–3).

15 Karageorghis and Lo Schiavo (1989b) assume an Atlantic origin for these, but Almagro-Gorbea (2001) sees them as of Cypriot, not Atlantic, origin; so too Mohen (1977).

16 Lo Schiavo and D'Oriano (1990: fig. 1) shows eighteen locations throughout Sardinia of such finds; pp. 106–8 lists finds by date of discovery; fig. 6 shows eight locations of finds in central Italy and seven in Sicily; Mederos Martín (1996: 102) reflects more recent finds of spits and fibulae, including one found in the grotto sanctuary at Pirosu.

17 Excavations now ongoing under the direction of Irene S. Lemos.

18 On this burial, which was discovered after the publication of Lefkandi I, see Popham, Touloupa, and Sackett (1982).

19 One of the arguments for a special, funerary purpose of the monumental building lies in its proximity to the existing cemetery (Popham, Calligas, and Sackett 1993: 100–1).

20 Boardman (1990: 176, 178, 179–83, 185, fig.3; 1994b: 99, fig.3) claims that north Syrians were overland merchants who had no known role as seafarers, contra Docter (2000: 137, and fig. 4), noting Aramaic graffiti and a funeral symbol on transport amphora in graves at Pithekoussai.

21 Luraghi (2006: 34) suggests that he might also have combined these occupations with piracy.

22 Papadopoulos, who suggests that he was Phoenician, argues that the "correct" interpretation of ethnicity rules out interpreting the burial as that of a Euboean, taking weapons in the burial as a sign that the occupant was a [male] warrior, and the use of weights as a mark of his/her occupation; the set of weights found in the burial does not offer evidence for ethnicity, but it does attest to active Euboean involvement in the Cypro-Levantine trading circuits (Kroll 2008: 44).
23 Although the grave of the "Euboean Warrior Trader" contained six Euboean plates.
24 First suggested by Desborough (1964: 20, 228; 1976), Popham (1994c: 30–3), Snodgrass (1994a: 5–6), Lemos (1998; 2001, 2002: 212–7 and n. 118), Lemos and Hatcher (1991).
25 The suggestion has been made that the Euboeans may have made settlements in the north, in Chalkidiki, as early as the twelfth or eleventh century, in an activity paralleling the Ionian Migration (Snodgrass 1994a: 6; 1994b; Popham 1994b: 12). The Euboean character of these northern settlements, however, while attested in the eighth century, has been questioned for the earlier period, and locally made and imported Mycenaean III pottery found at Torone, has also been attributed to the passage through the area of Ionians (J.K. Papadopoulos 1996, 1997b, 1998; Cambitoglou and Papadopoulos 1993).
26 A sherd portraying a part of a ship was found in the Skoubris Cemetery, Gully fill, see Popham, Sackett, and Themelis (1979–80, plates 274, 284); another sherd, from a pyxis dated 950–825, was found in the 1986 season (Popham 1987: 353–5), Eretria Museum.
27 Luke (2003: 56–8) summarizes all aspects of the evidence and arrives at the same conclusion.
28 The High Chronology, based upon the Bible, is supported by many scholars, notably Dever (1990; 1997: 201) and Stager (2001); it is contested by the proponents of the Low Chronology; see Finkelstein (1996; 1998; 2000; 2005a; 2005b), Finkelstein and Silberman (2001); Finkelstein and Piasetzky (2003; 2010).
29 As pointed out by Albright (1961: 346–7).
30 See the Nova production: http://www.pbs.org/wgbh/nova/bible/written.html (accessed March 17, 2011). For an argument supporting the literal character of the biblical account, see Dever (2001).
31 Papers on both sides of the controversy, including a recently revised High Chronology, Levy and Higham (2005); recent updates, Finkelstein and Mazar (2007); results as of 2008 of radiocarbon dating, Sharon, Gilboa, and Boaretto (2008). For a bibliography of the debate, see http://www.cjconroy.net/bib/chron-low.htm (accessed May 27, 2011).
32 Favoring and using the Low Chronology: Kopcke 2002; Coldstream 2003a; Coldstream and Mazar 2003; I. Morris 2006.
33 On the northern expansion of Phoenicia, see Botto (1988).
34 Found in 1986, about 75 meters upstream from the Ivriz relief, a partial stele and a colossal statue head discovered during the construction of an irrigation channel; only the bottom part of the stele survives and has a relief on one side and a hieroglyphic Luwian inscription on the back and the right sides. The other side has a Phoenician inscription. This text also mentions King Warpalawas. It is currently in the Ereğli Museum." http://www.hittitemonuments.com/ivriz (accessed March 28, 2011).
35 Periplus 102, see Baschmakoff (1948).
36 Luke (2003) questions that it was a wholly Phoenician settlement, suggesting that the Phoenician pottery may have been items of trade. On "Al Mina ware," see Boardman (2008: 184).
37 For the early debate, see Perreault (1993); according to Descoeudres (2002: 51), "the date of 770/750 for the first settlement of Al Mina can now be considered as established beyond reasonable doubt"; he offers a table listing the many interpretations of the site by archaeologists from 1936 to 2001.

38 Kearsley (1995), on the basis of a study of the previously unpublished Greek Geometric pottery from Al Mina held in Antakya, argued that at the earliest levels of the site (Levels 10–9), Level 10 produced seven identified fragments: five are LG; one a pendant semicircle skyphos with sub-Protogeometric decoration but a shape that places it in the second half of the eighth century, and one eighth century, either MG II or LG). Level 9, however, seems to have disappeared into Levels 10–8, which are predominantly LG in style, with only a little going back beyond mid-eighth century, and are dated ca. 750–700 BC; the remains of Level 8 reflect the arrival of Phoenicians and Cypriots in that period. She therefore concludes that it was Greeks who initiated the settlement, although that they were later joined by Cypriots and Phoenicians in the later period (Level 8). Kearsley (1999) also suggested that the Greek occupation may have taken the form of a mercenary colony, although mercenaries carrying a significant number of pots seems an unlikely explanation.

39 Also of this view, Karageorghis and Demas (1985: 1, 263–80), based on the apparent gap in ceramic styles. According to Karageorghis (2002: 115 and 58–9), only the northernmost part of the town adjacent to the inner harbor was abandoned, and the city shifted to the south; the completeness of the destruction is also questioned by Smith's recent study of the stratigraphy of the site and the related pottery (2009: esp. 8, 189).

40 In the vicinity of the hill of Bamboula, Yon and Caubet (1987: chs 1 and 2).

41 Gjerstad (1948: 231–6) identified it as a sanctuary of Melqart on the basis of finds of votive figurines of the fifth century. He reported that It succeeded CG I–II domestic buildings on the site, with a definitive break between the domestic and cultic uses, probably marking the advent of the Phoenicians.

42 A plaque at Bamboula from the end of the fifth century containing temple accounts specifically mentions the Temple of Astarte (Masson and Sznycer 1972: A 4, pp. 27–8).

43 Gjerstad found dedicatory figurines of the sixth through the fourth centuries of a "Herakles" figure with a lion or lion skin, and of a male figure with a thunderbolt (Zeus), which he interpreted as indicating the existence of a shrine of Melkart/Zeus, see Gjerstad (1937: 75, e.g., figs 24 + 590, 32 + 205, 19 + 145 + 378). Peckham (1998) sees the temple of Astarte as a Sidonian, not Tyrian, foundation, although true to his interpretation of their culture, they did not establish a city. Since Astarte was a principal god of Sidon, this would explain the dedication of the temple to her.

44 Josephus *Against Apion* 1.123; Karageorghis (1976a: 107 and n. 88), who attributes the suggestion to B. Mazar.

45 Introduced to Cyprus from Crete in the eleventh century (Karageorghis 2002: 147; Calvet 1993: 119 and fig. 6).

46 So too Jones (2000: 157), about the establishment of Carthage; *contra* Boardman (1990: 170–1), who argues against the westward expansion of the Phoenicians (at least settlement) before the eighth century, the "first really busy period of traffic to the farther west and throughout the Aegean," and then, he identifies the carriers as Euboeans (181).

47 Origins in west: Karageorghis and Lo Schiavo (1989b) and Sherratt (2004: 192, n. 37): "a prior history of metal spit development in the west . . . allows their possible origin in the west to be considered"; Hoffman (1997: 102–8 and 139–46), however, argues that they were of Cretan manufacture, citing recent work by Snodgrass (p. 143, n.111).

48 As argued by Burkert (1992: 21–5) and Vagnetti (1993).

49 Schreiber (2003) discusses the composite nature and origin of Black-on-Red, ultimately opting for a Cypriot origin, but the question remains rather open, as suggested by the term "Cypro-Phoenician" usually used to refer to Black-on-Red pieces.

50 Hoffman is skeptical (1997: 159–63).

51 Again despite the arguments of Hoffman (1997: 213–430, and Markoe (2003), who is also skeptical, see Stampolidis and Kotsonas (2006: 349).
52 Hoffman (1997: 197–207) objects that the contents do not resemble known deposits of a jeweler's stock-in-trade, which usually include tools as well as scraps of jewelry for reuse,
53 Hoffman (1997: 240–1), however, argues that granulation is simple and could easily have been newly invented; most modern jewelers, however, do not accept the simplicity of granulation, see the web site of the British Museum: http://www.britishmuseum.org/explore/highlights/highlight_objects/gr/g/gold_earrings_with_granulation.aspx (accessed March 17, 2011).
54 The idea that buried hoards were "hacksilber," collections of the raw materials of craftmen, is now generally rejected (see Kroll 2001: 78; Stern 2001).
55 Tomb J held over 36 clay beads; comprehensive discussion of the beads and their Attic connections, Vol.2, 626–27; another tomb with clay beads (Boardman 1960: 146–57).
56 Hoffman does not deny the existence of such workshops; in fact, she discusses the many examples, rejecting only the escalation of the claims for their existence into what she terms a "factoid" (1997: 189); contra: Lebessi (1975).
57 Accepted by Vagnetti and Lo Schiavo (1989: 232–3), citing Matthäus (1987; 1988); Muhly (2005a), on the contrary, rejects all suggestions of workshops of immigrant craftsman, on the grounds that such workers were under the control of the palaces – but in the Iron Age, there were no more Bronze Age palaces!
58 On amber, see Harding (1984: 82–7); central Greece also obtained amber through Medeon and Delphi on the coast of the Corinthian Gulf, and Perati in Attica, carried on overland routes (Eder 2003 [2004]: 47).
59 Malkin (1998b) on pottery seeming to indicate settlement but no houses at that time (p. 68, n. 14 and p. 70): on Aetos connections to Arta, Vitsa (p. 72).
60 D'Andria (1990: 283), at Otranto, about 600 fragments of MG II period, "besides the Corinthian material there is a group of vases that exhibit different technical and decorative characteristics and that can be attributed to the Euboeo-Cycladic sphere."
61 Plutarch, *Greek Questions* XI.
62 D'Andria (1990) points to the large amount of Greek (but not Eretrian) material in the first half of the eighth century in the area of the Straits as indicating intense commercial activity, which provided the opportunity to exchange desired goods from the north – amber, iron, silver, bitumen, roots of iris – without traveling all the way to the sources.
63 Antonelli (2000: 21–7) suggested that the anecdote originated in the wake of the much later Lelantine War as a effort by the Chalcidians to discredit the Eretrians.
64 Large amounts of Cypriot pottery were found from as early as MM IB, and peaking in LM IIIA:2 with total numbers surpassing those from any other Aegean site, the most numerous being Cypriot, but Egyptian pottery was also well represented by remains of flasks, amphoras, and transport vessels, while Canaanite pottery consisted entirely of transport amphoras. Sardinian wares began to arrive later than the others, toward the end of LM IIIA:1, and by LM IIIB they far outnumbered other foreign wares, shifting the sources from east to west (Cline 1994).
65 Bafico *et al.* (1997): these finds may "represent a moment preceding the foundation of other colonies on Sardinia," of which Sulcis is now considered the first, dating back only to 750.
66 Although the possibility of a minimal presence of Eubeans cannot be totally excluded.
67 Other pieces from Pithekoussai, Bernardini (1988).
68 The enigmatic inscription on the Nora Stele, found in AD 1773 near Pula, the ancient site of Nora, has been used to provide a date for the Phoenician arrival, and as evidence for the relationship between the Phoenicians and the Sardinians. The inscription has been dated on

palaeographical grounds to the ninth century BC (Shea 1996), and read by Peckham (1972), Shea (1996), and Frendo (1996), as a thanksgiving for the safe arrival in Sardinia of a commander and his army after they were expelled from Tarshish; Cross (1972), however, argued that a defeat would not have been reported, and that a part of the top is missing and should be reconstructed to make the piece a victory stele; thus, too, Ridgway (1992a: 26–7). Aubet (2001: 209), however, reads it as celebrating of the building of a temple to the god Pmy, dating it 830–730.

69 Timaeus in Dionysius of Halicarnassus, *Roman Antiquities* 1:74, I; and Josephus agree.

70 Radiocarbon dates on animal bones found in the earliest levels yielded a combined, calibrated date of 835–800 BC (with 95% probability), Docter, Niemeyer, and Niboer (2004); but see Kourou (2004: 507).

71 The "cachette Cintas" and "dépôt de fondation," Cintas (1950: 490–507), Boardman (2006: 199), Bénichou-Safar (2004: 63–4, 121–9, plate 37, 38), Aubet (2001: 224–6).

72 Evidence for the Carthaginian connections at Pithekoussai: Docter and Niemeyer (1994); Ridgway (1998a).

73 Or were they saved from prostitution in Kition and used to assist in the populating of the new settlement, as Lancel (1995)?

74 This might seem to be pushing legend too far, but the city did send a yearly embassy to Tyre to celebrate a sacrifice in the temple of Melqart in Tyre (Quintus Curtius, IV, 2, 10).

75 Wherever exports of Attic pottery are found in the east, they are almost always accompanied by Euboean pottery, suggesting that both types of pottery were exported in Euboean – or Cypriot? – ships, Coldstream (1996: 142).

76 Osborne (1996: 128–9): "opportunistic settlements ... a background where mobility was easy, and even normal."

77 Waldbaum (1999), in discussing Euboean finds of iron, notes only two tools or weapons found in eleventh century contexts (one knife and one dagger), while the Skales cemetery in Cyprus produced only one dagger and three knives; carburization was mildly or extensively used on the knives, but there was no evidence of quenching (p.35); from Lapithos carburized objects included a sword and six knives, some of which were coldworked but none quenched; from Amathus two knives from CG I contexts were heavily carburized and coldworked, and a CG IIA knife was moderately carburized and possibly tempered; another knife from a CG II tomb was carburized and coldworked. In summary, by the late eleventh and tenth centuries in Cyprus carburization was practiced on a fairly regular basis in producing knives and weapon, although only at Idalion is there yet any evidence of quenching (p. 41).

78 Livy mentions only the Chalkidians.

79 Although both north Syrian and Phoenician artifacts were found, the north Syrians were not actively engaged in maritime trade, which was a specialty of the Phoenicians.

80 Phoenician influence on the development of the polis (Oliver 1960: 56; Liverani 1975; Drews 1979; Snodgrass 1980a). Gschnitzer (1988, 1993) has made perhaps the strongest recent case in pointing to the similarities between the Greek state and the Phoenician state: the sovereignty of the people, the significant political role of the courts, and citizenship as a prerequisite for political participation. As evidence, he cites an Athenian decree of the early fourth century (*IG* 22 151 = *Syll.*3 185) in which honors are extended to 'the Sidonians, all who live in Sidon and there exercise civic rights,' as well as a fifth-century grave inscription of the 'King of the Sidonians,' which refers to the state as a group of citizens. For Gschnitzer, the appearance of the polis cannot be attributed to indigenous development – it was a phenomenon of political and cultural assimilation, a product of a historical process which began from the Phoenician states and was taken up and disseminated by the Greeks, as was the alphabet. Most recently, Davies (1997: 34) noted that evidence for councils of elders in

Byblos, Tyre and Sideon "suggests institutions not far removed from Gerousia or Areiopagos," but stated that models for an assembly of citizens were "almost impossible to detect; however, Aristotle *Politics* 2, 11 does attest to the authority of the people in assembly in certain situations.

81 D'Agostino (1994; 1999a and 1999b) reverts to the acquisition of land as at least part of the motivation for the choice of settlement site, as suggested by the ancient reputation of the island as *eukarpia*, by the discovery of small farmsteads in the countryside, and by the discovery of large numbers of transport amphorae.

82 Another mainland attraction may have been alum, used for medicinal purposes and the tanning of leather; it was already mentioned in the Linear B tablets of Pylos (Pugliese Carretelli 1962).

83 Niemeyer (Niemeyer and Schubart 1975: 143–5 and plate 53c; Lo Schiavo 1978: 41, plate 7.2) notes the presence of fibulae with double springs in Sardinia and Ischia that are instances of a type indigenous to Spain, which she calls examples of *di ritorno* on the route west to east.

84 Burials in the cemetery at the native settlement began in the final decade of the ninth century and were organized by family groups; the excavated area covered about 10 hectares, although it was not occupied intensively. The settlement was part of the common culture of southern Etruria (Pontecagnano, Capua). The earliest signs of Greek presence were skyphoi and cups of the Thapsos type (LG I and II).

85 Some adults were cremated while others were interred with few burial gifts.

86 On the problems of the *emporion–apoikia* distinction, see Ridgway (1995: 83).

87 The Big Man model was coined by M.D. Sahlins (1963) with reference to Melanesia; Binford (1983) emphasized its relevance to an understanding of prehistoric social change. In Greece, according to this model, after the collapse of the palaces, all higher organization vanished, communities were "bombed back" to the simplest village level, and authority was personal – the Big Man ruled; applied to Greece, Donlan (1985, 1989), Thomas and Donlan (1993), Donlan (1997).

88 Although Watrous does not include it in his discussion of models for the polis, which includes environmental factors, Neo-evolutionary theory, economic chiefdoms, wealth finance, peer-polity interaction, population growth, and the agency of elite leaders or groups. Applications of the Dynamic Model go back through early Mediterranean history at least to the Neolithic (and probably even to the trek "Out of Africa"), when people, perhaps influenced by climatic pressures – or a spirit of adventure – took to the sea to establish new homes in new lands (see earlier chapters).

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Index

Abu Hureyra 20–1
Adriatic, Mesolithic occupation of 10
Aegean
  end of Third Millennium collapse 118–19
Aeolian Islands, obsidian 53–5
Aetokremnos 8–9, 25
Aetos 239
Ais Yiorkis 15, 27
Akanthou-Arkosyko 27–8
Akkad and west Asia, drought 116–17
Akko, Sherdana settlement of 212
Alassa 171
Amarna Letters 166–7
  involving Cyprus 174
Amathus, foundation of 225
amber 237, 238
Amuq 72–3
  Amuq Plain 39
Anatolia 6–8, 7
  Neolithic in 40
Anatolian Trade Network (ATN) 91–5, Map 5.2
  and mainland Greece 98–9
Archanes/Phourni 104–5
architectural planning 147
Arslantepe 62, 68–9
Arta 239
articulated obelos 225
Aşıklı 13, 41, 44
Aspros 10, 25
Atlit-Yam 29–30, 76
Avaris *see* Tell el Dab'a

Bademağacı 44
Balearic Islands 155
Belbidi Cave 41
bitumen 67–8
boats
  Egyptian 77–9
Buto 70–1
Byblos 29, 39, 76
  Egypt trade 85–6

Cabezo Juré 112–13
Cappadocia 6
Cape Gelidonya shipwreck *see* shipwrecks
Cardial Ware 49
Carthage 242–3
Çatalhöyük 6, 15–16, 42–4
Cauvin, Jacques 13, 16, 36
Çayönü 13, 23–4
Chrysokamino 101–2, 121
Cilicia 38–9
climate change 36–7, 113–21
  see also Younger Dryas
Corinth 238–40
Coşkuntepe (Troad) 44, 46

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Crete
  Anatolian migrations 121
  crisis, end of third millennium 120–1
  Cycladic migrations 100–1
  Final Palatial 180–2
  Middle Minoan 132–7
  Neolithic establishment 46–8
  Neopalatial 137–41
  origin of palaces 68, 104–5, 141–2
  palatial-type buildings and villas 140–1
  Protopalatial 134–7
Cumae 248
Cyclops Cave on Youra 3
Cyprus 24–33
  Khirokitia 39–40
  LBA heir of Ugaritic trade 215–16, 220, 223–6

Dark-Faced Burnished Ware (DFBW) 37
Deneia 96–7
drought 115, 116
  see also societal collapse

Ebla 86–8
Egypt
  connections with Uruk settlements 70–7, 86
  expansion into Canaan 79–80
  First Intermediate Period 115
  Late Bronze Age 163–7
  Middle Kingdom 126–31
  Neolithic 56
  New Kingdom 151
  sea-going trade 85, 163–7, Map 7.1
  Second Intermediate Period *see* Hyksos
Egypt and Crete 144–6
El Argar 155
Enkomi 169–70, 173
Epirus 239
Euboeans
  predominance in overseas trade? 228–9
  presence in Adriatic 239–40
  on Naxos 240

farming, adoption of 16–17
Fertile Crescent 17; Map 2.1
Franchthi Cave 1–4, 48
frescoes 148–9

Gadir 223
Gaudo 107–8
Göbekli Tepe 13, 21–2
Greece (mainland) 198–9
  disruptions at end of Third Millennium 119–20
    see also Mycenaeans
  new maritime contacts at end of Second Millennium 238–40
Greek language, spread of in Neolithic 49
Greek settlements in Sicily 240

Habuba Kabiri 66–7
Hacınebi 63, 67–8
Hallan Çemi 17
Handmade Burnished Ware (HBW) 202, 212–14
health, rural vs urban 140–1
High Chronology (Bible) 229–31
"hilly flanks" 17
Hiram and Solomon 230
Hittites
  troubles at end of Second Millennium 194–6
Hoca Çeşme 45
Huelva 112–13, 221–3
Hyksos 149–51

Iberia 110–15
  Neolithic 55
island visitation 8–11, 24–5
Ithaca 239
Izmir Region Excavations and Research Project 45

Jebel Aruda 67
Jerf-el-Ahmar 20
Jericho 32

Kalavasos-Ayios Dhimitrios 171–2
Kalavasos Tenta 27
Kaletepe obsidian workshop 41
Karain Cave 41
Kastri on Syros and the ATN 93–5
Kition 170–1, 234–5
Kolonna on Aegina 118, 152–3
Kommos 241

Kömürcü-Kaletepe 41
Kythera 105–6, 153

La Marmotta 51–2
lapis lazuli 71–2
Lefkandi
  burial of "Warrior Trader" 225–8
  Hero Burial 227
Lerna, House of Tiles on 98–100
  destruction of 119
Levantine
  Corridor 28
  Cultural Interaction Sphere 7, 28, 39
  ports during Egyptian Middle Kingdom 131–2
Liman Tepe 45
  Early Bronze Age 93
Linear B tablets 182–5
Lipari and Aeolian Islands 4–6, 153–4
Los Millares 113–15, 155
Low Chronology (archaeology) 231–3
  see also High Chronology

Maadi 80
malachite 14
  see also metals and metallurgy
Malta 53–4
  maritime activities 185–9
Marki Alonia 97
Maroni-Vournes and Maroni-Tsaroukkas 172–3
Maroulas 2–3
medical lore and remedies in Egypt 146–7
Mediterranean Interaction Sphere 11
Melos 1–4
  see also obsidian
Mersin/Yümüktepe 38
metals and metallurgy 95–8, 142, 154–5
  Aegean 94
    see also Chrysokamino
  Anatolia 45, 60–70, 90–6, 143, 215
  Crete 100–3
    see also Chrysokamino
  Cyprus 225
    see also Philia *fascies*
  Ebla 87
  Lavrion, silver mines at 178
  malachite 14
  silver 68
  smelting 68
  and state formation in Italy 243–5
  tin 180
  tin bronze 73
  urbanization and Ubaid sites 60–6, 95–8
mice as evidence for settlement 96
migration
  at end of Second Millennium 200–2
  Jump-Dispersal Migration model 48
  Neolithic, motives for 56–7
Minoan palaces
  origins *see* Crete
Minoan trade
  Neopalatial 142–9
Mit Rahina inscription 130
Mochlos 103–4
Mureybet Region 19–20
Mycenaeans
  in Anatolia 185–7
  in Minoan Crete 180–2
  in the west 152–4, 187–9
  rise of the Mycenaeans 178–80
  Shaft Graves 152
  ships and maritime activities 185–9
Mylouthkia 1, 8, 26

Naram-sin 89
Nevali Çori 13, 22
Nissi Beach 10, 25

obsidian 32, 74, Chapter 2
  Aegean sources (Melos), 1–4, 46
  Anatolia sources 6–8
  seaborne transport of 8
  western sources
    Lipari, 4–6, 53
    Sardinia 53
Öküzini Cave 3, 41
Otranto 239
Oylum Höyük 74
Ozieri culture *see* Sardinia

Palmarola 6, 10–11
Panaztepe 45
Pantelleria 54
Phaistos, Protopalatial 135–6

Philia *facies* 95–8
Philistine settlements 208–10
Phoenician expansion
  in the Levant and Israel 229–31
  to Crete 235–8
  to Cyprus 233
  to the far west 221, 241–2
  to Sardinia 241–2
  see also Tekke treasure, Hiram, Solomon
Pınarbaşı 42
Pithekoussai 229, 245–8
Point Iria Shipwreck *see* shipwrecks
Poliochni on Lemnos 93–4
Polis, Cave of the Nymphs on 239
Poros 102–3
pottery Neolithic (PN) Chapter 3
Pre-Pottery Neolithic (PPN) Chapter 2
pyrotechnology 14

Ras Shamra 39, 75
  rise of 178,
  Sant-Imbenia, Alghero, contacts with 241–2

Sardinia 109–10
  Mesolithic sites 10
  Neolithic sites in 52–3
  Nuraghic culture 154
  Ozieri culture 53, 109
  see also Phoenician expansion
Sargon of Akkad 89
Sea People 188–9, 201–8
  "Barbarian Ware" *see* Handmade Burnished Ware
  in Cyprus 205–6
  in Greece 203–5
Shillourokambos 26–8
shipwrecks
  as evidence for trade 175–8, 184
  Cape Gelidonya 176–7
  Point Iria 177
  Uluburun 175–6
societal collapse
  end Third Millennium 115–21
  Late Bronze Age Chapter 8
  see also climate change
state creation and development
  Aegean 94
  Cyprus a unified state? 173–5
  democracy, early forms 88
  Ebla 87–8
  Egypt 79–81
  Greek polis, Homestead Model xi
  Italy, metallurgy and urbanization (state formation) 243–4
  Levantine experience with state formation 246
  models and 248–9
    Marcus's Dynamic Model 84
  Sulcis, establishment of 242
  Syracuse (Corinthians) 224

Tabbat al-Hammam 39, 75
Tarsus/Gözlü Kule 38–9, 95
Tavoliere della Puglia, Apulia 51
Tekke treasure 236–7
Tel Dor, Shikila/Shekelesh settlement 210–12
Tell Ashkelon 77, Map 4.2
Tell Brak 60–2, 69
Tell el Dab'a (Avaris) 129
Tell el-Kerkh 31–2
Tell Halula 21
Tell Hamoukar 63–4, 69
Tell Judaidah 73
Tell Kurdu 73–4
Tell Qaramel 31
Tell Sukas 39, 75–6
Tepe Gawra 62–3, 69
textiles
  Cypriot 224
  Minoan 145–6
  Egypt 145
Theopetra Cave 48
Thera, eruption of 83, 155–7
Thermi on Lesbos 94
Thessaly 45–6
Titris Höyük 117
Tôd treasure 131
trade and maritime contacts 142–9
  see also Tekke treasure, obsidian, shipwrecks
Transcaucasus 68
Troad, Neolithic 44–5
Troy
  EB I–II 90–1
  Troy III 117–18

Ubaid culture 60–6
Ugarit 167–9
  correspondence with Cypriots 174–5
  destruction of 199–200
Uluburun shipwreck *see* shipwrecks
Ulucak Höyük 45
Ur III 89–90
Uruk expansion sites 66–70

Valencina de la Concepción 110–12
Vasilia 97
Vitsa 239
Vivara 153–4

Wenamun, Report (or Lament) of 220–1, 223
West Mainland *Koine* 238
White Ware 14, 37

Younger Dryas 16 *see also* climate change
Yarmukian culture 30